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BRANCH I.

ORIGINAL COMMUNICATIONS.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Figure in which Trees ſhould be diſpoſed in Plantations, with a Plate.

SIR,

IN two treatiſes which have been lately publiſhed upon the ſubject of planting, and which, I perceive, have met with your approbation, moſt of the particulars connected with that important branch of country improvement have been explained with ſufficient fulneſs and perſpicuity. But there is one minute part of the ſubject, which ſeems hitherto to have been conſidered rather ſuperficially; I mean, the form or figure in which trees ſhould be diſpoſed in plantations. Mr Loudon recommends the planting of trees in an *irregularly irregular* manner, which he conceives to be the moſt natural form; and whatever is moſt natural is, according to him, the moſt beautiful. Mr Nicol prefers planting in equidiſtant rows, the trees being ſet at equal diſtances in the rows, or in the form of a quincuna, ſo as to admit of the ground being ſtirred and kept clean while the trees are young.

It is not intended, at preſent, to inquire whether the irregularly irregular order be the moſt beautiful or not; the purpoſe of this diſquiſition is merely to promote utility. But it may juſtly be doubted, whether that order be the moſt natural. An appeal to experience cannot fairly be made in this caſe; for all the evergreen plantations in Britain have been raiſed by art, and all the deciduous woods have probably been frequently cut down, and the young trees which ſpring in great numbers from the roots of theſe having been wed out occaſionally, the whole wood comes in time to aſſume an irregular appearance in the diſpoſition of the

trees. We have no reaſon to ſuppoſe, however, that this irregularity is the work of nature; it may have ariſen from the artificial operations of cutting and weeding. It is by no means an uſeleſs inquiry to make, What is the natural diſpoſition of trees in a foreſt? For it is a generally received maxim, that nature endeavours to attain her ends by the beſt poſſible means. Extraneous cauſes may ſometimes derange her operations; but it is the proper buſineſs of art either to remove or obviate theſe counteracting principles. Art cannot be better employed, than in ſtudying the courſe, and following the example of nature.

Let us then lay out of view, for a moment, all thoſe cauſes which may contribute to the diſpoſing of trees in a foreſt in a particular form, but which are, at the ſame time, different from thoſe powers within a tree itſelf, by which it is enabled to multiply and diffuſe its own kind. Let us abſtract from the influence which the wind may have in ſcattering confuſedly the ſeeds of trees, and from any ſmall variations in the quality of the ſoil immediately around a tree, which may cauſe the young plants to riſe in different places from thoſe which they would occupy, if left ſolely to the diſpoſal of the parent tree.

Theſe conditions being ſuppoſed, the following propoſition appears extremely probable, that *mature ſtrong trees, which have ariſen from the ſeed of any one tree, will be found nearly in the angles of an equilateral and equiangular hexagon, with the original tree in the centre.* Let the point A of figure 1. be ſuppoſed the original tree. The ground overſhadowed by its branches, may be repreſented by the circle B C D E F G. For though few trees form an exact circle by the extremities of their branches, yet all approximate to that ſhape. This tree will ſcatter its ſeed before it attains its full growth; but, as its branches gradually extend, the young plants that ſpring up under their ſhade will be weakened, and none of them will come to maturity. At laſt the original tree becomes ſtationary over the circle B C D E F G, and, ſcattering its ſeeds as before, many young plants will ariſe upon or near this circumference. They will be much too numerous to come all to maturity, but ſome will be ſtronger than others. Let it be ſuppoſed, that one plant ſtronger than thoſe in its near neighbourhood is placed any where upon the circumference, as at B. This will extend its branches juſt as the original tree did, only it will be prevented from extending them fully towards the point A, becauſe the branches of the original tree are in that direction. However, it will encroach conſiderably upon that tree, which may now be well ſuppoſed to be verging towards decay. In all other directions, this ſecond tree will be at liberty to extend his branches, being oppoſed by nothing but comparatively

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weak plants; and there is no reaſon to ſuppoſe, that, when its branches come to be fully extended, they will cover a ſpace of ground materially different in ſize from that covered by the original tree. The ground overſhadowed by the ſecond tree at its full growth, may therefore be repreſented by a circle equal in ſize to the firſt circle. This ſecond circle will cut the firſt in the points G and C, and all the plants that ſprung from the ſeeds of the original tree, upon the ſegments B G and B C, will be ſuffocated by the tree B. At the points G and C, however, the plants will be no longer moleſted by the tree B; and if any ſtrong plants be at or near either of theſe points, they will ſpring up and extend themſelves in the ſame manner that B did. The ground covered by them may, therefore, be repreſented by equal circles, which will cut the original circle in the points D and E, at which points there will be room again for plants to ſpring up, and come to maturity in like manner; and their circles, when extended, will cut the original circle in the point E, where again there will be room for a tree to ſpring up and come to maturity.

Now, if theſe ſeveral points be joined by ſtraight lines, as in the figure, they will form an equilateral and equiangular hexagon. The manner in which it has been conſtructed, is indeed a little different from that laid down by Euclid, book IV. prop. 15. But the proof of its being a hexagon, reſults ſo immediately from that propoſition, that I ſhall not conſume your valuable pages with the demonſtration of it, as it muſt be at once obvious to every perſon in the leaſt ſkilled in mathematics. And thoſe who are not at all acquaint with that ſcience, may eaſily ſatisfy themſelves, that the above figure, and every figure formed upon the ſame principles, is an equilateral hexagon, by counting the ſides, and meaſuring them with a pair of compaſſes.

The reader will eaſily perceive, that though, from the imperfection of language, the ſeveral trees, B, C, &c. have been deſcribed as extending themſelves one after another, yet they will really all advance together. He will alſo perceive, that in the foregoing reaſoning, ſeveral things have been taken for granted, rather upon probable than certain foundations; but of this, there can be no doubt, that wherever the young plants ariſing from the ſeed of any tree, as A, are placed, they will be found ſomewhere or other upon the circumference of the circle B C D E F G. This is a neceſſary conſequence of the ſeeds falling perpendicularly from the extremities of the branches of the original tree, which they will do in all ſheltered ſituations. They are placed therefore at ſuch a diſtance from the original tree, as is equal to the radius of the circle of ground which that tree covers with its branches. If we ſuppoſe that ſome of theſe young plants are to arrive at an e-

qual ſize with the original tree, they muſt be placed at leaſt as far from each other as they are from it. But they will not be placed at a greater diſtance; elſe we muſt ſuppoſe that nature places young trees at a greater diſtance from each other than ſhe does from a full grown tree; which is extremely improbable. It may therefore be fairly concluded, that ſuch trees as are deſtined to attain to maturity in a natural foreſt, and which have ariſen from the ſeed of any one tree, will be found at a diſtance from that tree, equal to the radius of the circle of ground which it covers, and at an equal diſtance from each other. The mathematical reader will at once recollect, that the ſide of every hexagon is equal to the radius of the circle within which it is deſcribed; wherefore, *mature ſtrong trees, which have ariſen from the ſeed of any one tree, will be found nearly in the angles of an equilateral and equiangular hexagon, with the original tree in the centre.*

If what has been ſaid be well-founded, it follows, that a certain degree of reſtraint or confinement upon the branches of trees is natural to them. With regard to the tree A in the figure, it is plain that its branches are encroached upon by every one of the trees around it. And, with regard to the circumferential trees, it is alſo plain that their branches are confined in every direction where the circle of their ſeveral circumferences is marked by a dotted line in the figure. As each of theſe trees may be ſuppoſed of nearly equal ſtrength, each will reſtrain the next tree with equal force, and will extend its branches to only half the diſtance which it would do, if it were planted apart. It is very certain, that trees allowed to grow cloſely together, will ſhoot to a much greater height, than when planted at a greater diſtance; but it may be doubted, whether, what is gained in height, is not loſt in thickneſs and ſtrength? I leave it to others to determine whether the reſtraint in which trees appear naturally to grow, ſhould be imitated in artificial plantations, or whether it is not one of thoſe things which it is the proper buſineſs of art to remove or obviate. I am rather inclined to this laſt opinion myſelf, from this conſideration, that the tree A in the figure ſuffers no material reſtraint, until it has arrived at its full ſize, and is beginning to verge towards decay.

It is eaſy to ſee how each of the circumferential trees, when they proceed to ſcatter their ſeed, will raiſe the young plants around them in the form of hexagons, juſt as the original tree did, and thus the whole foreſt will be diſpoſed in the form repreſented in figure 4., which is a collection of hexagons packed cloſely together, with points in the centres of each. The method of planting trees in that order, is extremely ſimple; but it is unneceſſary

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to ſhow the practicability of this meaſure, until your readers may be convinced of its propriety. I therefore now proceed to another argument, which is much ſtronger than the other, becauſe it can be ſtrictly demonſtrated upon mathematical principles; I mean, *that the cloſeſt order in which it is poſſible to place a number of points upon a plane ſurface, not nearer than a given diſtance from each other, is in the angles of hexagons, with a point in the centre of each hexagon*; and, of courſe, it muſt be very economical to plant trees in the above order, becauſe leſs land will ſerve to contain the ſame number of trees when planted in this order, than in any other.

In the *firſt* place, a hexagon with a point in the centre, has this property, that each of the angles is at an equal diſtance from the two angles on each ſide of it, and alſo from the central point. This propoſition is virtually demonſtrated in the courſe of Euclid's Problem, book IV. prop. 15.

Secondly, A number of points are not placed in the cloſeſt order poſſible, being not nearer than a given diſtance from each other, when they are placed in the angles of any *irregular* figure. For, by the very idea of an irregular figure, its angles are not at equal diſtances from each other. But, by the terms of this propoſition, none of the angles muſt be nearer to each other than the given diſtance; therefore ſome of the angles muſt be more remote. But, in a hexagon, none of the angles need be more remote from each other than the given diſtance; therefore the angles of a hexagon are nearer to each other than the angles of any irregular figure whatever, deſcribed according to the conditions of this propoſition.

Thirdly, No *regular* figure, except the hexagon, has this property, that each of the angles is at an equal diſtance from the two angles on each ſide of it, and alſo from the central point.

For if any ſuch figure exiſt, it muſt either have a greater or a ſmaller number of ſides than ſix. 1*ſt*, Let the figure be ſuppoſed to have a greater number of ſides, as ſeven (ſee Fig. 5.); then, by the hypotheſis, each of the ſides, A B, B C, C D, D E, E F, F G, and G A, is equal to every other ſide, and each of them is equal to its diſtance from the central point; therefore, the three ſides, A B, B H, H A, are equal to one another, and A B H is an equilateral triangle, which is alſo equiangular, (Euclid, I. 5. cor.) But all the angles of a triangle are equal to two right angles (Euclid, I. 32.); therefore, the angle A H B is equal to the one third of two right angles. In the ſame manner, it may be ſhown that the angle B H C is equal to one third of two right angles; and the whole angle A H C is equal to two thirds of two right angles. In the ſame manner, alſo, the angle C H D is

equal to one third of two right angles; and the whole angles, contained by the lines A H, H D, are equal to three thirds, or, which is the same thing, to the whole of two right angles. In like manner, it may be shown that the angles contained by the lines D H, H G, are equal to two right angles; therefore, the angles contained by A H, H D, and by D H, H G, are together equal to four right angles; and there remains the angle A H G; so that the angles formed about the point H, by straight lines meeting each other there, are equal to four right angles, and something more, which is impossible, (Euclid, I. 15. cor. 2.) Consequently, no seven-sided figure can have the property here supposed; and, *à fortiori*, no eight-sided figure can have it, nor any figure with a greater number of sides. Neither can any regular figure with a smaller number of sides than six have the property, that each of its angles shall be at an equal distance from the two angles on each side of it, and also from the central point. This proposition may easily be demonstrated from fig. 6.; but as the means of proof are nearly the same as those used in the last case, it is unnecessary to go through the detail of it. These propositions being premised, let it be observed, that if a number of points are placed on a plane surface, not nearer to each other than a given distance, and in the angles and centre of any other regular figure than a hexagon, if the angles are at the given distance from each other, they must be at a greater distance from the central point than the given one; and if they are at the given distance from the central point, they must be at a greater distance from each other; for it results from the propositions just now proved, that the angles cannot be at an equal distance from each other, and from the central point; and by the conditions now supposed, they cannot be at a less distance than the one which is given; therefore, they must be at a greater distance than the given one, either from each other, or from the central point. But in a hexagon, it is not necessary that any of the angles should be more remote from each other, or from the central point, than the given distance; wherefore, the angles of a hexagon are nearer to each other, and to the central point, being not nearer than a given distance, than the angles of any other regular figure; and a similar truth has already been proved, with regard to all irregular figures; and consequently, *the closest order in which it is possible to place a number of points upon a plane surface, not nearer than a given distance from each other, is in the angles of hexagons, with a point in the centre of each hexagon*, Q. E. D.

Any person who is unacquainted with mathematics, may form some faint idea of the propositions which have now been attempted to be explained, by looking at fig. 2. Let him take se-

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ven shillings, (or any other circular plates of whatever size, provided only they be equal to each other), and place one of them in the middle, as A. Let him place the other six shillings around it, as B, C, D, E, F, G; and he will find the space around the middle shilling to be completely filled up, except as to such vacances as are the necessary result of circles being attempted to be packed together. If he try to add another shilling, he will find that one will unavoidably encroach upon another; and if he take any away, a vacuity will be left. Now, the centres of the seven shillings, disposed as in the figure, will form a hexagon, with a point in the middle; and, by measuring from centre to centre with compasses, he will find that the centre of each shilling will be at equal distances from the centres of those which are next to it, and also from that of the one in the middle.

There are several other advantages attending the disposing of plants in the hexagonal, or at least in some regular order, besides those already mentioned; such as, that the ground may easily be kept clean, if that be deemed necessary, with a horse-hoe; and that when the trees require to be thinned, or finally cut down, if they have thriven nearly equally well throughout the plantation, you may calculate with sufficient accuracy the quantity of timber you will have, by only measuring what grows on a small portion of ground. Trees planted in hexagons will shelter each other more than when planted in squares, (the usual form of regular planting), as is evident from the mere inspection of fig. 3. and 4. If they are allowed to stand pretty close to each other in hexagons, they will acquire more regular heads, than if they be planted in any other figure whatever.

But as enough has been said on the *propriety* of this disposition of plants, I proceed now to show how easily it may be practised. It will not be proper to form hexagons directly upon the field, for this would be attended with too much trouble. But it will be recollected, that a hexagon, with a point in the centre, consists of six equilateral triangles; and a number of hexagons, arranged as in Fig. 4., consists of rows of equilateral triangles, raised all one above another. If, therefore, a method can be pointed out of describing equilateral triangles with sufficient expedition and accuracy upon the field, it will amount to the same thing as describing hexagons.

The first row of trees, as from I. to II. (fig. 4.) is easily planted, by measuring the given distance from one plant to the place where another is to be set in. The most obvious way of planting the second row, so that the trees in it shall form equilateral triangles with those in the first, is to take a rope as long as two of the sides of the intended triangle; fix the one extremity of the

rope at the first tree in the first row, and the other at the second tree, and let an assistant stretch the rope by the middle. The middle of the rope will be over the point where a tree is to be set down in the second row. The inconvenience of this method is, that it will require three men to plant every tree, which may be thought a greater sacrifice of trouble and expense, than the hexagonal order of planting is worth.

The next mode which suggested itself, was to make a model of an equilateral triangle in wood, with an iron pin at one of the angles. Supposing the first row planted, lay the two points of the model that are without the pin, to two of the trees in the first row, and then press down the pin at the other angle into the earth; the pin will mark where a tree should be placed. To this method, however, it may be justly objected, that if the machine be five feet in the length of each side, (which is generally a proper distance for young trees to be planted at), it will be too heavy for expeditious use, and of too unwieldy a figure to admit of being conveniently carried from place to place.

The last method which occurs to me is exceedingly easy in practice, and founded in principle on the proportion between the altitude and the side of an equilateral triangle, which it will therefore be necessary to attend to. Upon looking at fig. 4., it will appear that the points of every row are vertically above the middle of the vacant spaces in the row immediately under it, and that the rows are distant from each other according to the altitude of the several triangles. If the distance of the rows can be fixed by ascertaining the altitude of the triangles, the points in each row may be placed opposite the middle of the vacant spaces in the preceding row, which any workman may do by the eye alone, with sufficient accuracy for every practical purpose.

Let A C D (fig. 2.) be an equilateral triangle having the side A C = 1000; required the perpendicular or altitude A H. As each of the angles of the triangle is equal to 60°, if C A be supposed radius, A H will be the sine of 60°; and from any table of natural sines and tangents, it will be found that the radius being equal to 1000, the sine of 60° will be equal to 866. The sides of the triangles to be made upon the field being supposed equal to five feet, the altitude of each triangle is found by the following proportion.

feet feet

As 1000 : 866 :: 5 : 4·33, or 4 feet 4 inches very nearly. The principles are now explained of the following

RULE.

Take a line and two staffs, the one five feet long, and the other four feet four inches; stretch the line upon the ground which is to be occupied by the first row of trees, as from I. to II. (fig. 4.);

plant

plant the first tree at the extremity of the line; from thence measure one length of the long staff, and plant the second tree as at 2; thence measure with the long staff, and plant the third tree at 3; and so on, till the whole of the first row is planted, at the distance of five feet from tree to tree. Then lay aside the long staff, and make no further use of it. Set off a perpendicular by means of the short staff from one extremity of the line, as I. A, and set off another perpendicular from the other extremity of the line, as II. B, remove the line from the first row, and stretch it between A & B, for the second row. Plant the first tree in this row (as No. 12. of the figure) upon the ground covered by the stretched line, and as nearly opposite as you can judge by the eye to the middle between Nos. 1. & 2. of the first row; plant the second tree in this row upon the ground covered by the line, and as nearly opposite as you can judge by the eye to the middle between Nos. 2. & 3. of the first row; and so on. In the same manner plant all the other rows, only observing that each succeeding row has alternately one tree more, or one tree less, than the row immediately preceding. This the workman will naturally attend to of himself, as he will put in a plant wherever he sees full room for it at the end of his line.

Other rules might be given, founded upon the same principles with the above; and in theory they are more accurate; but they would require the workman to keep in his hands both the long and the short staff, during the whole of his operations, which would be attended with the imminent risk of his mistaking the one for the other, and deranging the whole plan. Most country labourers will easily understand the above rule; but it would be adviseable for any gentleman, who may incline to put it in practice, to make the person who is to plant his trees attend him with a line, two staffs, and fifty or a hundred pins, and see him stick them into the ground according to his directions. This will not require much of his time, and it will contribute to insure an accurate performance of the work.

As it may be necessary to plant trees at other distances than five feet from each other, I subjoin a table of the length of the short staff corresponding to different lengths of the long staff from 3 feet 6 inches to 6 feet.

Long Staff.				Short Staff.	
Ft.	In.			Feet.	Inches.
3	6	—	—	3	0·372
4	0	—	—	3	5·568
4	6	—	—	3	10·764
5	0	—	—	4	3·960
5	6	—	—	4	9·156
6	0	—	—	5	2·352

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In figures 3. and 4. the points are arranged at the same distances from each other in both figures; but figure 3. contains 121 points, in the form of small squares; and figure 4. contains 126, in the form of equilateral triangles. Now it may be thought, at first sight, that the saving of land, which is apparent even from the figures, is, however, too insignificant to merit all this discussion, as it amounts to no more than about 4·17 per cent. But the saving is still greater; for, when trees are planted in the form of small squares, it is necessary that the field should either be a square or a rectangle, and that the distance of the trees from each other should be an aliquot part of the side of the great square or rectangle, otherwise there will remain some ground which it will be impossible to fill up with trees at the given distance. In the same manner, when the trees are planted in a square field, in the form of equilateral triangles, unless the altitude of the triangles be an aliquot part of the side of the square, some ground will remain which it will be impossible to fill up; and, accordingly, fig. 4. not only contains 126 points, but half the breadth of a row remains unfilled up. In practice, the probability will be equally great, that ground will be lost in the one way of planting as in the other; and therefore, in order to compare the two methods fairly together, there must either be taken away from figure 3. half of the points contained in a row, or there must be added to figure 4. half of the points of a row, that is to say, as many points as the unfilled up space would have contained, had it been of a shape capable of receiving them at the given distance. Hence, 5 points fall to be added to 126, making the whole points virtually contained in figure 4. amount to 131; whereas figure 3. contains only 121 points: so that there is a saving of about 10 in 120, or 8·33 per cent. This saving is considerable; but, still, not so great as the truth; for in figure 4. there is a loss of one point in every alternate row, which is very apparent in a small figure; but in a field of large extent, as of ten acres, for example, this loss vanishes altogether, practically speaking. Hence there must be added to the 131 points which figure 4. virtually contains, six more (for so many are lost in the alternate rows), making the whole amount to 137. Here, then, the saving of land by the triangular way of planting above the square way, turns out to be in the proportion of 137 to 121, or it is equal to $15\frac{1}{7}$ per cent. This appears from merely examining figure 4. and comparing it with figure 3. But some of your readers may wish for a more precise investigation; and I the more willingly enter upon this inquiry, because it will tend to a discovery of the principles upon which tables ought to be constructed, for showing what quantity

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of trees are wanted for planting upon grounds of various dimensions; and such tables will be very necessary, if the method of planting now recommended shall meet with the approbation of the public.

The ordinary tables which have been published upon this subject, are framed upon the supposition that the trees are to be planted in the form of squares, as in figure 3.; and as these tables have been found to answer practical purposes with tolerable exactness, it may fairly be concluded, that no method has yet been followed of disposing trees in a closer order than that of squares.

If the field to be planted in the triangular form be of the shape of a hexagon, or an equilateral triangle, or of a parallelogram composed of two equilateral triangles joined together by their bases, there will be no trees lost in the alternate rows; but as landed proprietors endeavour, when utility is their only object, to divide their fields as nearly into squares as the nature of the grounds and the line of marches, roads and rivers, will permit, I shall suppose, in my investigation, that the field to be planted is of a square shape.

Let the given distance at which the trees are to be planted be equal to unity, and let the side of the field containing unity a times. Then the number of trees that may be planted upon this boundary of the field at the given distance will be equal to $a + 1$. Thus, the line I. II. figure 4. is divided into ten parts, but it contains eleven points. But because the apex of an equilateral triangle is perpendicularly over the middle of the base, therefore the second row of these trees will contain a number equal to the number of bases in the first row, which bases being equal to a, the second row will contain a trees. The trees in the third row are perpendicularly over the trees in the first row, and therefore $= a + 1$. The trees of the fourth row are perpendicularly over those in the second, and therefore $= a$. Thus, one half of the rows contain $a + 1$ trees, and the other half a.

We must next inquire how many rows there will be, or how often the side of the field will contain the altitude of the triangles; for it is plain that this altitude just measures the distance of the rows from each other. The side of the field is $= a$, and the altitude of the triangles is equal to the decimal ·866, and therefore the number of altitudes in the side of the field $= \frac{a}{\cdot 866}$.

And the number of rows is equal to one more, that is $= \frac{a}{\cdot 866} + 1$. For in figure 4. there are eleven altitudes in the side I, 11, but there are twelve rows. Now the number of trees in the whole field is equal to the number of rows, multiplied by the number of

trees

trees in each row; and half the rows contain $a + 1$ trees, and the other half a trees; therefore the whole number of trees

$$= \frac{\frac{a}{\cdot 866} + 1}{2} \times \overline{a + 1} + \frac{\frac{a}{\cdot 866} + 1}{2} \times a.$$

By way of example, let us apply this formula to a particular case. Suppose a field of ten Scotch acres is to be planted with trees in the square form, at the distance of five feet from tree to tree. The side of a square of ten acres is 10 Scotch chains, or 740 feet.* If this line be divided into spaces of 5 feet each, it will contain 148 such spaces; but it will contain one tree more, that is, 149 trees; and the whole field will contain the square of this number, or 22201 trees. Next, let it be supposed the field is to be planted in the triangular or hexagonal form, and apply the above formula. The side of the field $(a) = 148$, the base of the triangle $= 1$, and the altitude $= \cdot 866$. Then the number of rows $= \frac{148}{\cdot 866} + 1 = 171 \cdot 9$. The one half of these rows (85·95) contain 149 trees each $= 12806 \cdot 55$; the other half contain 148 trees each $= 12720 \cdot 60$. These two products added together, make the total number of trees planted in the hexagonal order, and contained in the field $= 25527 \cdot 15$. But as the fraction of a tree cannot be planted, the decimal may be neglected. The difference between the number of trees that may be planted in the one order and in the other, appears to be very considerable; but it is convenient to have the difference expressed by proportioning it with a number in common use. Therefore state, as $22201 : 25527 :: 100 : 114 \cdot 98$. So that it appears, that, in planting a field of ten acres, with trees of five feet asunder, very nearly 15 per cent. more trees can be raised by disposing them in hexagons than in squares. The larger the field is, the advantage will be the greater; but there is a limit, beyond which the advantage cannot be carried; that limit is 15·4556 per cent., as appears from the following calculation, founded upon the supposition that the loss of a tree in the alternate rows of triangles evanesces. Let the distance from tree to tree = unity, the side of the square field = 866; of course, it will contain 867 trees, and the whole field 751689 trees, in the square order: But, in the hexagonal order, the number of rows will be 1001, and the number of trees in each row 867; hence, the field will contain 867867 trees. Then, as $751689 : 867867 :: 100 : 115 \cdot 45559$. This result is different from what was brought out formerly, from the mere inspection of figure 4.; and the reason is, that conclusions, drawn from the mechanical construction

* Query—Does not the Scotch chain contain a fraction more than 74 feet? CONDUCTOR.

tion of a very small figure, cannot be accurate. The object then in view was, to shew to such of your readers as may not be familiar with mathematical reasonings, that a saving of land would be the result of adopting the plan here recommended; and the particular examination of the *quantum* of that saving, was reserved for a discussion of a more precise nature.

I cannot dismiss this paper, without obviating an objection that may be made to the accuracy of the above calculations. It has been stated, that the number of trees which a field of ten acres will contain, in the square order, at the distance of five feet asunder, is 22201; whereas Mr Ainslie in his Tables, page 139, makes the number only 21900. But Mr Ainslie has fallen into two errors; one which runs through his whole table, and another which affects this particular number. In the first place, he finds the square root of his area; he then divides this root by the distance at which the trees are to be planted; and by squaring the quotient, he thinks he obtains what is wanted. In short, in the example of ten acres, he conceives that the proper way is to take the square of 148 instead of 149. His rule will answer well enough, however, where the field to be planted is surrounded with a dry-stone dyke, which will not admit of trees being planted upon it; but if it is surrounded with a hedge, in which trees may be planted, his table will be found not to be perfectly exact. In the second place, the true number of trees required for a field of ten acres, at five feet asunder, according to Mr Ainslie's own principles, is the square of 148, or 21904, and not, as he states it, 21900. It is very plain how he fell into this error. He never took the trouble of calculating the number of trees necessary for ten acres, but contented himself with doubling the number he had previously got for five; and he fixed this last number, by doubling the number for two acres and a half, and so on. But he was obliged to calculate a number for some small area, and this number was followed by a fraction, which he neglected; and an error from this cause, at first of no consequence, has continually accumulated in all the subsequent operations. I trust, therefore, that however different the results which I have given may be, in some respects, from the common tables, they will be found, upon a strict examination, to be correct.

It were easy to add a short table, shewing how many trees are required for planting fields of different sizes, according to the hexagonal order; but it is unnecessary to calculate it, till I shall see whether you deem what I have already written worthy the attention of the public, by inserting it in your Magazine. Suffice it to say, that fifteen trees being added to every hundred, in the number pointed out in the common tables, will not be very far from the truth. I am, yours, &c. PHILO-HEXAGON.

TO

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the evil Tendency of ascertaining the Rent of Farms by the highest Offer.

SIR,

IT seems to be an opinion, gone into by the highest class of agriculturists, that the only sure way of ascertaining the value or rent of a farm, is from the different offers of those who mean to occupy, and become tenants thereof. The authorities to this opinion are so great, that, at first sight, it may appear presumption to call it in question; yet, notwithstanding of these, the matter may be viewed to advantage on the opposite side: Prejudice in favour of any opinion, which has once gained the ascendancy, is often capable to conceal from very acute minds, reasons which appear to others of great moment. This is not a question of inferior consequence, but one of those leading articles, upon the right conception and application of which, much depends, both for the interest of proprietors and tenants; as it is therefore worthy of the closest investigation, from such of your correspondents as may have turned their minds that way. In what follows, by way of stating the question, I contend for an original right, which seems in some danger, as the times go, of being entirely lost; that is, when the parties are both pleased, a demand ought to be made for the farm, whether high or low is out of the question. I shall then state, in a few particulars, the bad consequences which I apprehend will follow the present mode of determining the rents from the highest offers.

1st, When the country was in a state of nature, and improvements only begun, or beginning, a tenant possessed of sufficient stock, and who had obtained any degree of agricultural knowledge, if he got the length of lease that pleased, needed not differ much as to the rent, because he was certain, that although too dear for the present, yet his improvements, and advance of money, would soon make it a good bargain; but as improvements advanced, and the difference of the new mode of cultivation above the old became more generally known, the inducements to become farmers were thereby increased. Improvement, however, for many years, seemed to make but slow progress; though, from the present advanced state of agriculture, it is obvious to every observer, that all the while it had been gaining ground more rapidly than most people were disposed to believe. This infant state of agriculture was, on rational principles, nursed with care and tenderness by the more enlightened part of proprietors. Indeed,

deed, the first improving tenants did not hesitate about paying what was considered at that time as great advances of rent; neither were many of the proprietors backward in giving the length of lease desired, which was in general thirty-eight years, and sometimes a lifetime, to be named at the end of that period. In the occupation of these, many, at least of the improving tenants, came into such situations as had not been formerly known in the agricultural line; and as success in any branch of business has the power of drawing others into that line, so this stimulus acted here accordingly. It became, in process of time, an easy matter to find tenants for all farms as they came into the market. It was not so in the earlier stage of the business. The rent was then commonly demanded by the proprietor, or offered by the tenant to whom he wished to give the farm; if an agreement could not then take place, it was open to any one who was equal to stock it, and would give the rent; and if no one was found, the place of course fell vacant. That farms should fall vacant at present, would be thought very extraordinary, but, at the period under discussion, it was very common. Ascertaining their value from a number of offerers, was then unknown: it could not exist, while the demand for them was scarcely equal to the number which came into the market. Gentlemen who wished to raise their rents above the common, found the means, by splitting the farm into crofts, to which a few bad seasons commonly put a period.

2*dly*, As the population of the country increased; as trade and manufactures flourished; as the system of agriculture improved; as the number of tenants capable of this more perfect cultivation increased; and as the farms came out of lease in various stages of order, something done, and much remaining to be done; while the value of money * was at the same time rapidly declining;—

it

* The depreciation of money is assigned by all as one great cause for the rise of rents; and is undoubtedly true, to a certain extent. Horses, cattle, sheep, swine, &c. raised upon a farm, find their level in the market, and have risen much in value. Grain of every denomination, it must be observed, is upon a very different footing. Like the interest of money, it is, in some degree, legally prohibited from going beyond a certain extent, and would be kept equally steady, if it was not for the very great difference which bad seasons make in the return of crops. When the price goes far beyond the legal standard, it is of little consequence to the farmer, as he is then much more deficient in quantity to bring to market. Who bids more? is made the regulating principle, both for ascertaining the value, and also for rectifying every abuse as to the size of farms, either great or small, by a gentleman of high respectability. That this principle is possessed of those qualities, cannot be questioned;

it was eaſy to foreſee, that land would riſe greatly in value, and that a greater competition would take place in renting of farms. That land ſhould have come to the value it now finds in the market, I do not ſay that any agriculturiſt could have foreſeen or expected. It no doubt had a title to come as far as the difference that former improvements increaſed its value, and in ſome proportion to the value its productions obtained, at an average, in the market. Conform to theſe *data*, will every valuator of judgement and candour aſtrict his report. Conform to this alſo, with perhaps ſomething ſunk for the ſake of a ſituation, but keeping in view, partly, that the man who officiates at the altar muſt live by the altar, will every wiſe man form his offer; and moſt undoubtedly, according to this rule, ought every proprietor to make his demand. But, when no demand is made; when the article is advertiſed over all the kingdom, (the offers to be concealed, if deſired), what is the reſult of the value aſcertained by theſe means? or, what obligation is the tenant under, who obtains the preference upon this condition? His judgment muſt be greatly ſet aſide, to make way for neceſſity; that is, if he is out of place, he muſt get in at all adventures; and if he has to contend with others who may be rather wiſhed for, there is no alternative but to extend his offer to ſuch a height as he ſuppoſes no other man can give, and to ſecure the place, whatever may be the conſequence. In ſome caſes, real judgment directs one to the choice of a farm. The man is ſenſible of his own abilities; he knows what is within his power to perform upon ſuch fields, and can gueſs pretty nearly what returns they will produce. But, in many caſes, vanity miſleads. One eſtimates his own abilities above their due value; and, from this error, falls into another, of eſtimating the produce of the fields above what they will yield. Either one or both of theſe will lead ſuch a perſon into miſtakes, though he will not fail to ſuppoſe, if the farm is worth ſuch a rent to any other perſon, it muſt be worth that, or more, to him.

3*dly*, The very extraordinary difference there is betwixt the offerers for the ſame farm, points out the abſurdity of determining

queſtioned; but whether the cure is not worſe than the diſeaſe, is yet to be learned. Suppoſe a farm comes into the market, of ſuch quality and ſize as exactly ſuits three or four different candidates, all of whom are poſſeſſed of ſufficient ſtock, knowledge, and agricultural abilities, every one of them equally capable to produce the greateſt returns, with the leaſt expenſe, will they all offer the ſame rent? Muſt not the ſucceſsful candidate often exceed his own judgment, in order to obtain the poſſeſſion, from the conſideration, that ſuch a farm ſeldom comes into the market?

ing rents in this way. Upon almoſt any article that can be mentioned, if a certain number of men, who are as much converſant in it as every farmer muſt be upon his own farm, are called to put a value, their verdict, if taken ſeparately, will come nearly to the ſame amount. It might be expected, that the ſame fair value would be affixed by different offerers for the ſame farm; but that it is not the caſe, is very certain. The reaſons are partly aſſigned above. One makes an offer as directed by judgment; another as directed by vanity; and a third as compelled by neceſſity. If to theſe we add, the difficulty of making a proper eſtimate, this difference will not appear ſo very ſurpriſing. Every offer muſt proceed upon calculation; and this takes in, not only the expence of cultivation, manures, levelling, draining, &c. but alſo the probable produce, through good ſeaſons and bad ſeaſons, through high markets and low markets, and (unleſs in very favourable ſituations) through times when there is ſcarcely any market at all. Then, from the whole account, to draw a fair and final concluſion, has been found ſo very difficult an undertaking, that even the director of the magazine has uniformly avoided it, declaring calculation with accuracy to be almoſt impoſſible; and has pointed out glaring errors from every work hitherto revjewed, where it had been attempted. Nothing could be a ſtronger proof of the accurate judgment given by the director upon that ſubject, than is here preſented. If the different offerers do not proceed upon their different calculations, they do not proceed upon any principle reconcileable to common ſenſe. But whether the higheſt calculations are uniformly the trueſt, I ſhall leave to be determined by others.

4*thly*, For every diſpoſeable article known in Great Britain (land excepted), the poſſeſſor can, and will moſt readily make a demand, whenever a merchant or purchaſer appears. The market is not ſteady for any one article whatever; it riſes and falls from cauſes that cannot always be accounted for, although many leading principles, tending to its depreſſion or riſe in value, can be accounted for. It is the proportion of ſupply to the demand, that almoſt regulates the price of every article. Scarcity itſelf will not maintain the value of an article, if the demand for it is wanting; nor will plenty depreſs it, if the demand is briſk. That the occupation of land has come into faſhion, and that the demand for it for ſome years paſt has been very great, cannot be queſtioned; of courſe, it naturally roſe in value. But although it did riſe much, ſtill it was poſſible to make the demand high in proportion; and, indeed, ſome gentlemen of this mind have made ſuch demands for farms, as have not hitherto been complied with; yet this is a fair and open manner of tranſacting buſineſs; it runs

parallel to all other great tranſactions in the mercantile world. It does not keep the purchaſer in the dark, or in ſuſpenſe, for one ſingle day; and the event is, that either the article muſt yet riſe farther in value, or the demand muſt be lowered, until it comes more in contact with the market price in the opinion of the purchaſer, when a bargain will naturally take place. If there ſhould be nothing to recommend this ſyſtem at all, but the open and candid manner in which it is gone about, it ſurely ought to have the ſanction and ſupport of every honeſt and generous mind. But it has recommendations on every hand; as every proprietor thereby has it in his power to be fully ſatisfied with the tenant, before he gives him an offer of his farm, and may be freed at once of thoſe whom he judges unable or unfit for the management thereof. As to the tenant, if his own judgment miſlead him, there is no help; but he is not compelled to act againſt it. There is no offer concealed behind the ſcreen, perhaps from a man worth nothing, who never was meant to be the tenant, and was only brought there to miſlead him. Indeed, the only thing that can be ſaid of affixing rent, by the higheſt of a number of offers, if judged according to the valuation put upon any other article, by a number of people ſeparately, is, that the higheſt will put the article above the value. And that this has not already been more felt in land rent, is becauſe the value of it has been progreſſively increaſing; becauſe many proprietors have ſettled with their own tenants, or with others of equal reſpectability, at lower rents than this conteſt would have yielded; and becauſe only a proportion of the old leaſes have yet expired. But, ſhould this ſyſtem be perſevered in, as is juſt now univerſally the caſe, it does not require much of the ſpirit of prophecy to predict, that, in the end, it will prove to the proprietors vexation and diſappointment; to the tenants ruin and deſpondency, when adverſe ſeaſons come on, or a glut in the market, for any length of time, reduces the price of agricultural produce. Until the evil cure itſelf, however, little hopes can be entertained of any alteration taking place in the matter; while it is ſupported, on the one hand, by bringing higher rents to the proprietors; and, on the other, by accommodating thoſe, who are moſt forward and ventrous, with poſſeſſions.

I have conſidered this important queſtion chiefly as it reſpects the proſperity of agriculture, or more particularly, as the diſcuſſion affects the public good; it being my opinion, that the intereſt of individuals, whether proprietors or tenants, ought, in ſuch caſes, to be viewed only as a ſecondary and inferior object.

C. B.

Aberdeenſhire, 1806.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

Anſwer to the Letter of A. S. on Sheep Smearing.

SIR,

THE following obſervations on the propriety of ſmearing ſheep, are deſigned as an anſwer to your correſpondent A. S., who ſeems imperfectly acquainted with the objects intended to be gained by that operation.

In the firſt place, ſmearing keeps ſheep warm and dry through the exceſſive fleets and rains of winter. Tar and butter, the principal ingredients in the ſalve uſed, being of an unctuous, oily nature, reſiſt the rain in the ſame manner as the feathers of water-fowls continue dry, when ſwimming in their native element; and as every pile of wool, from its root to its top, is anointed with this unguent, and as the wool grows in a hanging poſition, like the thatch of a houſe, ſo, it accelerates the rain from the animal, without drenching it to the ſkin, which would unavoidably be the caſe, if unſmeared. When a ſheep is right ſmeared, the whole ſurface of the ſkin is completely anointed, and alſo the root of every pile of wool; the heat of the animal liquifies the ſalve, and the oilieſt part of it ſlowly ſeeks its way to the tops of the wool. In a fortnight (if the animal be thriving) the wool is conſiderably grown; and, as it riſes, it lifts along with it, from the ſurface of the ſkin, a kind of *leuce*, (which is the groſſer part of the ſalve that adheres to the pelt, the finer or more oily part diffuſing itſelf through the fleece); it alſo clears the ſkin of every cutaneous impurity contracted by ſummer heats, improper management, &c. leaving it white and clean. This *leuce*, as it were, weaves a thickneſs on the fleece that the rain never penetrates; and in the ſpring, when repeated winds, thaws, froſts, &c. have dried up the oleaginous quality of the ſalve from the tops of the wool, this continues an impenetrable defence, through which the rain, though pouring down in torrents on high mountainous paſtures, can never find a way. It may eaſily be inferred, how this powerful reſiſtance to wet conduces to the warmth and comfort of the animal, and ultimately to the continuance of its vigour and ſtrength, through all the inclemency of winter. But ſmearing alſo thickens and binds the fleece, ſo as almoſt totally to exclude wind; * the free

* I am truly ſorry to find an allegation brought againſt what is commonly called the ſhort ſheep, or foreſt breed, by that patriotic gentleman Sir John Sinclair, Baronet, whoſe indefatigable endeavours for the proſperity

admiſſion of which would prove as injurious to the animal as rain. It will, indeed, when blowing ſtraight upon the animal, ſometimes perforate to that cloſeneſs and thickneſs ſpoke of above; but all below that, continues cloſe and undiſturbed.

Smearing cannot, of itſelf, cure, but it is a good preventive of the ſcab. A. S. admits that it kills ticks and cades; and ſo muſt be beneficial; but wherever theſe vermin are ſuffered to neſtle and breed, an itch leſs or more is the conſequence. With ceaſeleſs perſeverance the animal eagerly applies its ſides, ſhoulders, &c. to rocks, pointed ſtones, braes, &c. Theſe lacerate the ſkin; and hence, a foulneſs and humour inſenſibly overſpread the external parts, which, if not timeouſly checked, ſoon produce an inveterate ſcab, and this without communication with a flock already infected. Beſides, as unſmeared ſheep are commonly reduced to a low ſtate through the winter, by being frequently ſteeped to the ſkin by rain and ſleets, the wool in the ſpring is more apt to be prematurely peeled off or deſtroyed, the moment that new graſs begins to renovate or invigorate the conſtitution. Thus, after they have ſtruggled through a ſevere winter; after driving ſleets and nipping gales have worn down their vigour, and exhauſted their ſtrength, they ſtill ſtand a chance of being cut off, by being prematurely expoſed either to chilling winds or ſcorching ſuns, before a new growth of wool has ſprung up to form a defence againſt either. Want of ſmearing not only deteriorates the quality, but, in a ſeries of years, diminiſhes the quantity of wool. What is loſt by leanneſs, or peeled off by itching, is never well replaced by a new growth, nor ſo thick as when clipt. Hence the fleece turns thin, open, hairy, coarſe, and dry; whereas the pile is not only ſoftened, but the ſward thickened, by annual ſmearing. *

Again, ſmearing is a mean of continuing the vigour and ſtrength of ſheep unimpaired for ſome years longer than would otherwiſe take

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proſperity and happineſs of Scotland have ſeldom, if ever, been equalled. He ſays, their fleeces 'are ſo thin, looſe, and open, that the leaſt breeze expoſes the ſkin to the blaſt, and the ſlighteſt ſhower of rain penetrates to it;' but I have no heſitation in ſaying, that after they are ſmeared, and the wool again cloſed, neither wind nor rain reaches the ſkin, in any quantity, through the winter, till they are again clipt; and this aſſertion reſts not upon conjecture, but upon repeated and frequent obſervation.

* Perhaps a little explanation is neceſſary here. Where the tar is badly mixed, it burns and deteriorates the pile; but where it is ſufficiently mixed with butter, tallow, or oil, it has the beneficial effects mentioned above.

take place, if kept unſmeared. In a word, the free admiſſion of rain, drifts, and cold, through an unſmeared fleece, generally reduces the animal to the loweſt ſtate of imbecility; and this annual reduction of ſpirits and conſtitution, ſhakes the health, and makes the animal fail a year or two ſooner than otherwiſe it would, if regularly and completely ſmeared.

Thus, Mr Conductor, I have detailed a few of the properties of ſheep ſmearing. I might have combated the objections of A. S., and ſhown the futility of ſome, and the abſurdity of other inferences which he makes; but theſe things ſhall be delayed to another occaſion. Allow me to add, that the continuance of the cuſtom from time immemorial in this iſland, and the practice of the ableſt ſtoremaſters in the country, are irrefragable proofs of its utility; and were the practice not found to be eſſential to the comfort and benefit of the animal, it would certainly have been long ago diſcontinued, conſidering the expence and tedioufneſs of the proceſs. I am yours, &c.

S. L. A.

P. S. The above obſervations muſt be underſtood of ſheep paſturing on high mountainous grounds.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Endurance of Leaſes.

SIR,

FROM the readineſs with which you formerly admitted ſeveral long diſcuſſions concerning the nature of the leaſe, tranſmitted you from our Eddleſtone Club, I perceive you agree with me in conſidering the proper conſtruction of the tenure of leaſe, as the primary foundation of good huſbandry. A recent occurrence has brought into agitation the queſtion of the *legal endurance of the leaſe;* *

* In the preſently depending cauſe relative to the entail of Neidpath, where there are no reſtricting clauſes as to leaſes, the preſent poſſeſſing heir was unanimouſly found inhabile, by the Court of Seſſion, to grant a leaſe for the ſpace of ninety-ſeven years, which was the caſe challenged; ſeemingly upon the footing, that ſuch leaſes approximated to alienation, and were debarred by the entailing clauſe prohibiting alienation. The Court had appointed a ſolemn hearing, for the purpoſe of ſetting the queſtion at reſt, viz. 'What length of leaſe will the law ſupport, upon the interpretation of the Scots ſtatute 1449, againſt a ſucceeding heir of entail, where there is no limitation of leaſes in the entail, or againſt

and the importance of the matter will, I am ſure, in your eſtimation, give an imperious claim, for admittance into your work, to an eſſay upon the ſubject, if not found inadmiſſible through failure in execution. In the preſent diſcuſſion, I ſhall be at no pains to avoid recapitulation of the ſtatements or reaſonings already uſed, in the eſſays you formerly inſerted; as, in a matter of ſuch general intereſt, it may be of uſe to preſent the ſame argument under different points of view.

Time was, Sir, when the great anxiety of landed proprietors, in many unenlightened parts of Scotland, was to obtain tackſmen to occupy their lands; and to perſuade theſe tackſmen not to take advantage of that power of giving up their bargain, at ſtated periods of the leaſe, which the tackſman was in uſe to inſiſt upon being provided for him, by ſpecific clauſes to that effect, leſt he ſhould be hurt by being forced to continue the occupation of the lands till the period of the leaſe ſhould expire. In the preſent ſtate of agriculture, when ſo much ſuperior ſkill and enterprize ſubſiſt among the claſs of practical farmers, and when ſuch ſuperior extent of capital has accumulated in their hands, no ſuch anxiety is any longer manifeſted by the proprietor. His apparent intereſt is, to ſhorten, if poſſible, the term of endurance contracted for, as he is morally certain of increaſe of rent, upon every recurrence of the vacation of his farms. Nothing, however, but adequate

againſt any other ſpecies of ſingular ſucceſſor.' As the act 1449 protects tacks (or leaſes) without ſpecifying their endurance, the queſtion hinges upon this point, *What length of duration makes a tack depart from its nature of a temporary right, and deviate into that of a perpetual one, by becoming a* quaſi *alienation.*

If any given length ſhall be fixed, which ſhall make the tack be legally conſtrued a perpetuity, then ſuch tack will not fall under the protection of act 1449, which only protects tacks having an iſſue or term of expiry; and no tack, exceeding this legal endurance, will be ſuſtained, under an entail debarring alienation, unleſs powers are ſpecially granted in the entail to let tacks of greater length. Nor will ſuch tacks be ſuſtained againſt other ſingular ſucceſſors; becauſe, for the ſecurity of mortgagers, or purchaſers, all rights affecting land to perpetuity, muſt be recorded; and, as tacks are not recorded, if ſuch tack is ſuſtained, the faith of the record is invalidated, as to its form, in preciſely ſhowing all perpetuities affecting land.

In the caſe in queſtion, though the deciſion of the Court only went to eſtabliſh the point, that ninety-ſeven years exceeded the term of legal endurance, there was nothing, in the deciſion, to ſpecify the preciſe limits of that term. Yet it was collected as the general opinion, in what fell from the Bench, *that nineteen years conſtituted the legal term of endurance.*

adequate length of poſſeſſion could have given origin to this increaſe of ſkill, and enterprize, and accumulation of capital: Yet avarice is, is general, an extremely ſhortſighted paſſion; and the killing of the hen to come at once at her eggs, and the cutting down of the tree for immediate poſſeſſion of its fruit, are practices by no means confined to the perſonage of fable, or to the ſavage of Louiſiana: Similar ſhortſighted views of intereſt in landed proprietors, muſt militate equally againſt their own permanent intereſt, and the general thriving of the community. The only intereſt of the two contracting parties to the leaſe, in point of endurance, that ſeems *now* to ſtand in particular need of protection, becauſe againſt it alone does any real or apparent intereſt ſtand oppoſed, is that of the tackſman.

Pactio tollit legem; and whatever may be ſuppoſed the *legal endurance* of leaſe, the contracting parties may, if under no legal diſability in this reſpect, legiſlate for themſelves. A landed proprietor, in full poſſeſſion of his property, unreſtricted by entail, may contract for any *conventional endurance* of leaſe, which the parties chuſe to fix upon. By ſuch a contract, he becomes bound *perſonally* himſelf, and alſo binds *perſonally* his natural heirs, or heirs at common law, who repreſent and are identified with his perſon, to make good this obligation to the tenant, in ſecuring to him poſſeſſion of the land during the whole term of endurance contracted for,—if only the term be ſhort of abſolute perpetuity, and have an iſh or term of expiry; a condition eſſential to the conſtitution of a leaſe, according to the ſpirit of the Scots law. But the tenant's right, ſo conſtituted in his contract of leaſe, is by no means conſidered as veſting him in a *real right* over the lands, entitling him directly to hold by and follow the land. It is only virtually and in effect rendered *real* to the tackſman, in conſequence of the law enforcing the tackſman's *perſonal* obligation upon the grantor of the leaſe and his heirs, by compelling them to continue him in poſſeſſion of the lands, ſo long as they continue able ſo to do, by the lands remaining their own. When, however, the lands ceaſe to belong to the grantor and his heirs, from their having ſold them to ſome other, the perſonal obligation upon *them* cannot, thus, be *realized* to the tackſman; and the ſingular ſucceſſor by purchaſe, not repreſenting, nor being identified with *them*, is liable in none of their perſonal obligations. The *lien* of the tackſman with the lands (created to him merely through the mode in which the fulfilment of the perſonal obligation is enforced) is therefore diſſolved; he can be ejected by the new proprietor; and his only recourſe is againſt the grantor of the leaſe and his heirs, for damages, in conſequence of their failure in fulfilment of their perſonal obligation as to the endurance

of the leaſe. Such are the maxims of the Scots law in regard to rights of leaſe.

It was the intention of the act 1449, to ſecure to the tackſman his *real lien* with the land, againſt all eventual proprietors of the land, during the term of endurance contracted for in his leaſe.* The letter of the ſtatute (quoted in page 391 of Number XXIV.) is abundantly broad; no limitation, ſhort of perpetuity, is ſpecified, as to the extent of endurance of leaſe which the act will protect: it only appears, from the definition of the right of leaſe given in the act, that it has an iſſue or term of expiry, and is not a right of abſolute perpetuity.

But there is ſuppoſed to be a conſtructive perpetuity, relative to the uſes and ſhortneſs of human life, or to the indiſpenſable exigencies of agricultural induſtry, within the limits of which the endurance of the leaſe, it is ſuppoſed, muſt be confined; otherwiſe, that it will be conſtrued to be perpetual; not to have an *iſſue*, and conſequently not to be within the comprehenſion of the protection of act 1449.

What is this conſtructive perpetuity? is the queſtion. The ſuppoſed general opinion delivered from the Bench, in the cauſe alluded to, was, that any period of leaſe exceeding nineteen years, fell under the deſcription of conſtructive perpetuity; and that nineteen years is the utmoſt extent of endurance that will be protected by law, as entitled to the benefit of the ſtatute 1449.†

If this opinion ſhall ſtill be expreſſed, ſo as to ſeem ſteadily adhered to, after a reclaiming petition; or ſhall be laid down as the law upon the caſe, after an appeal, by the Houſe of Peers; I believe, though I ſhould wiſh much to be corrected if I am in the wrong, that the tenant's ſecurity as to the endurance of his leaſe, will, thenceforward, ſtand as follows.

1ſt, Upon an entailed eſtate.—Where, by the operation of entail,

* It would ſeem that the ſecurity of this act was neceſſary, even againſt the natural heir of the grantor of the leaſe; who, at the time of the enactment, was (in reſpect of leaſes) not liable in his predeceſſor's obligations;—the leaſe was, in fact, a mere perſonal obligation upon the grantor.

† This was ſo much conſidered to be the prevailing opinion, that it was pleaded ſubſequently in argument, in favour of a tenant's right of aſſignation of a leaſe of twenty-one years endurance—that this leaſe, as being one of *longi temporis*, or conſtructive perpetuity, implied the right of aſſignation, if not ſpecially debarred in the leaſe;—whereas, one of mere legal endurance infers the *jus delectus*, and cannot therefore be aſſigned without leave to that effect in the leaſe.

tail, every ſucceeding heir (even a ſon ſucceeding his own father) is held as ſingular ſucceſſor to his predeceſſor; as ſucceeding upon the footing of deſtination, and not of natural ſucceſſion, and, of courſe, not bound in the perſonal obligations of his predeceſſor, either in reſpect of his leaſes or of his debts;—upon ſuch eſtates, *where there is no reſtriction in the entail as to leaſes*, a leaſe of nineteen years, but not longer, will be held good againſt all ſucceeding heirs of entail, as falling under the protection of the act 1449. Even *ſuppoſing there are reſtrictions confining the power of leaſing within a ſhorter period, or, even taking away the power altogether*, ſtill, by the act 10th of his preſent Majeſty, (enacted for the purpoſe of relaxing ſuch clauſes, in favour of improvement), a leaſe for nineteen years would be ſupported; and, upon certain conditions of improvement upon the part of the tenant, therein ſpecified, a leaſe would be ſupported of two lives and ſurvivancy, or thirty-one years definite. I conceive, however, that, where the entailer has granted latitude of letting leaſes for any given length of time, a leaſe, for the whole length of that endurance, would ſtand good againſt all challenge to the tackſman.

2d, In regard to lands held in full property, unfettered by entail; a leaſe, of any length of endurance ſhort of perpetuity, (even by one deciſion, of an endurance *while graſs groweth up and water runneth down*), will be ſuſtained to the tackſman, againſt the grantor and his natural heirs, ſo long as they retain the property of the lands. No leaſe, however, of longer endurance than nineteen years, will be ſuſtained to the tackſman againſt thoſe who have purchaſed the lands; the purchaſer may eject the tenant, who has only recourſe for damages againſt the grantor of the leaſe and his heirs. As, however, the grantor or his heirs, to avoid this claim of damage, will take the purchaſer bound to implement the leaſe, the tenant will generally be ſecured, if the ſale of the lands is a *voluntary* one. But if the ſale is a *compulſatory one*, by adjudication at the inſtance of heritable creditors, *their* debt is preferable; the tenant cannot rank as a creditor upon the land along with *them*; they would therefore have no intereſt in ſecuring his leaſe from the purchaſer by the terms of ſale; he would be ejected by the purchaſer, and be left to find his recourſe for damages againſt the grantor and heirs, who are, by the ſuppoſition, bankrupts. The ſecurity, therefore, to the tenant, of a leaſe beyond nineteen years endurance, from an unfettered proprietor, againſt his ſingular ſucceſſor by purchaſe, muſt, in effect, be computed in the *ratio* of the proportion betwixt voluntary and compulſatory ſales of land.

From this ſtatement, it would appear, that if nineteen years ſhall be fixed as the legal endurance of leaſe, none above nine-

teen

teen years can be ſecured againſt ſingular ſucceſſors upon an unentailed eſtate; that upon an entailed eſtate, impoſing reſtrictions as to leaſing, no leaſe can be ſecured, without conditions of improvement, above nineteen years, nor, with them, above thirty-one years, by act 10. Geo. III.; and that leaſes above theſe periods can alone be ſecured, upon entailed eſtates, where the entailer has ſpecified a longer period, to the extent of which he has given permiſſion to grant them. The legal reaſon for this difference, is drawn from the ſecurity wiſhed to be conferred upon purchaſe or mortgage upon land. There is a particular regiſter for entails, in which they muſt be recorded, to be valid againſt third parties; where the intending purchaſer or mortgager can ſee that they are not the ſubject of purchaſe or mortgage. There is alſo a particular regiſter * for all perpetual rights affecting landed property, ſuch as purchaſe or mortgage, in which they muſt be inſerted, to become valid againſt third parties: But leaſes do not go into this record: *Ergo*, if leaſes of long endurance (by law conſtruction, *quaſi* perpetuities) were to ſtand good againſt purchaſers of, or mortgagees upon, the land; the ſoleciſm would preſent itſelf, of a regiſter, pretending to give a full account of all the rights of perpetuity affecting landed property, in which, however, theſe *quaſi* perpetuities do not appear. †

If

* See an account of the Regiſter of Saſines, in Findlater's Agricultural Survey.

† I neither know, nor much care, whether this appropriate reaſoning ſhall be accounted legitimate argument, or mere fanciful quibbling with analogy.

It has always ſeemed a wiſe meaſure, that great ſecurity ſhould be extended to mortgage and purchaſe, by a regiſter, which ſhould ſhow the rights of the ſame kind previouſly affecting the lands. In my view, the right of leaſe is more worth ſecuring than either, in point of public utility. It might not be the caſe when the regiſter of ſaſines was firſt invented; from the very inconſiderable quantity of capital launched out upon leaſe. At preſent, however, I ſhould ſuſpect that ſtock inveſted in leaſe, in well cultivated diſtricts, bears a very conſiderable proportion to the whole value of landed property; I mean, however, *its* value, if land were the free ſubject of commerce; for, at preſent, there is a moſt extravagant artificial dearth of land, from its being locked up from the market by entail.

If a very undue partiality, then, does not take place againſt the ſecurity of property embarked in leaſe, why might there not be a Court Regiſter of leaſes of longer than legal endurance? and that all leaſes ſo regiſtered ſhould be legal.

Abſolute

If that favourable interpretation were univerſally ſhown to leaſes, which has been ſhown in particular circumſtances, a mode of interpretation ſuggeſts itſelf, which might be interpoſed, without any proportionate injury to third parties, in all caſes of leaſes litigated, by heirs of entail or their ſingular ſucceſſors, as exceeding the legal meaſure of duration: The grantor, though found to have exceeded his powers of granting a ſecure leaſe, might be preſumed to have intended to have granted it to the full extent of his powers, upon the common maxim, that *the greater always comprehends the leſſer*; and the grantor might be ſuppoſed to have granted ſuch an extent of leaſe, at the term immediately preceding the date of his having ceaſed to have power to grant it; or, at any rate, the leaſe might be ſuſtained as good, for the legally ſuſtainable period, reckoning from the date of its own commencement. I am, however, diſpoſed to believe, that ſuch a leaſe would at once fall before a proper challenger, as void and null *ab initio*, excepting againſt the grantor himſelf.

Such, then, would appear to me the tenant's ſecurity, as to the endurance of his leaſe; upon the ſuppoſition of the opinion, I have already ſtated, being adhered to.

I ſhould, however, be very glad to learn from any of your law correſpondents, upon what grounds of law or expediency they could preſume this ſuppoſed opinion of nineteen years being the utmoſt limit of endurance which the law will ſupport (where no private paction of parties who can be compelled to fulfil their paction ſuperſedes law) is founded. They could not do a greater favour to agricultural induſtry, than by pointing out to the practical farmer the footing of ſecurity upon which he ſtands.

I can ſay, Sir, that I have read, with ſome care, the oppoſite memorials upon the caſe alluded to, of two of our moſt reſpectable counſel, together with a reclaiming petition, drawn up with great ability by a junior counſel of high promiſe; and although the whole pleadings bear upon the general queſtion, '*Whether there is a legal endurance, ſhort of perpetuity, which confounds a leaſe with alienation, and withdraws it from that protection which the ſtatute* 1449 *extends to tacks having an iſſ; and if there is ſuch a*

Abſolute ſecurity is probably unattainable in human affairs. A ſwindling proprietor, unfettered by entail, might cheat his creditors by firſt mortgaging his eſtate to its full value, and then letting it in leaſes of the legal endurance, at very low rents, upon graſſums or fines at entry. And this might be done whether the legal endurance is long or ſhort—unleſs made ſo ſhort as to ruin all agricultural induſtry, for the ſecurity of mortgage. Indeed, the only check, is the hanging of ſuch a proprietor as a fraudulent bankrupt.

a limit in reality, what is the extent of that limit?' yet, I confeſs, I can ſee neither any law determining the queſtion, nor any thing in practice upon which any ſolid argument can be founded; although, certainly, every thing producible may be preſumed to have been produced.

In regard to legiſlative enactment, the act 1449, in its literal acceptation, renders every leaſe legal; and ſupports it againſt all, into whoſe hands the property may come, whatever be its length, if only it have an iſh.

The next enactment affecting, in any way, the ſubject of the endurance of leaſe, is the famous entail ſtatute of 1685, empowering the lieges to entail their lands, *under what conditions they think fit*; through which clauſe, as interpreted in practice, a power has been conſidered as conferred, both of rendering leaſes unchallengeable by the ſucceeding heir of entail, of whatever length of endurance the entailer may have pleaſed to allow; and to circumſcribe their endurance, againſt the ſucceeding heir, within the narroweſt limits he ſhall have been pleaſed to fix; or even to render all leaſes null and void, in reſpect of ſucceeding heirs.

As it is difficult to bring proprietors to reconcile themſelves to the idea of relinquiſhing the command of their property; as might have been conceived, entailers erred not on the ſide of latitude as to the endurance they granted to leaſes. They were found, however, to have counteracted public utility, in extinguiſhing every ſecurity to agricultural enterprize and outlay, by circumſcription of endurance.

To counteract theſe ruinous effects of the power of entail, is, as declared in its preamble, the purpoſe of the only other act relative to this ſubject, namely, the act 10th of George III. As the reverſionary expectants upon entail muſt ever be greatly more numerous, at leaſt, than the actual poſſeſſors; an act, whoſe avowed purpoſe was to give the exiſting poſſeſſor more unlimited command over the ſubject, might well be expected to raiſe much clamorous oppoſition; and it were abſurd to ſuppoſe that the extent of latitude, obtained with ſuch difficulty, in regard to entails, *where there were exiſting reſtrictions*, was ever intended by the Legiſlature to fix the boundaries of latitude that might be aſſumed, *where there exiſted no reſtriction at all*. This act, then, which grants a latitude of thirty-one years endurance of leaſe upon certain recited terms of improvement on the part of the tenant, and which (not ſo much directly, as by implication) allows of nineteen years without any ſuch condition, *in defiance of all reſtrictions impoſed by the entailer*, can never, in common ſenſe, be interpreted as deſigned to impoſe the mere extent to which reſtriction is enlarged, as the boundary within which liberty muſt be confined.

There

There is, then, in none of theſe acts any thing reſembling a limited legal endurance; the only thing to be found is, the vindication of liberty to a certain extent, in caſes where it has been attempted to be circumſcribed, by a power committed to the diſcretion of individuals by the entail act, which had been ſo abuſed as to call for what relief could be obtained.

The period of legal endurance (if there is, or neceſſarily muſt be any limits) has not yet been fixed by the competent authority of the Legiſlature. It remains to be fixed by interpretation, without the ſmalleſt direction of law; and a diſcretionary interpretation can never certainly follow any other rule, with propriety, than what is ſuggeſted by views of public utility.

Were the factitious perpetuity of the accountants (where an annuity comes, in money-valuation, to be worth the ſame as a perpetuity) to be followed as the criterion of the approximation of a leaſe-endurance to perpetuity, the matter would, at leaſt, be fixed by an intelligible analogical reaſon; and ninety-nine years would be the limits of the legal endurance of the leaſe.

Poſitive law being entirely out of the queſtion, the legal endurance has been attempted to be fixed, upon the authority of the *ipſe dixit* of writers upon law. Such authority, if aſſumed by ſuch writers, was certainly aſſumed moſt preſumptuouſly, incompetently, and ineptly; and could only be acquieſced in through the paſſive weakneſs of ignorant ſtupidity. But it is not pretended that they have ever arrogated to themſelves any ſuch *autocratrix* authority. Public expediency, it is confeſſed, is the only rule which ever could be applied to regulate this matter, in the abſence of poſitive law; and public expediency is alleged to be evinced by what has been found moſt prevalent in practice. The term of endurance of leaſe, which has ordinarily prevailed, muſt therefore be conſidered as that which has been found moſt expedient, and ought therefore to be fixed upon in ſettling the term of legal endurance. Law writers, therefore, have aſſumed no incompetent authority; they have only recorded the fact, marking the ordinary term of endurance which has prevailed, and rightly conſidering this term as the one which, in public expediency, ought to receive legal ſupport.

Againſt this mode of eſtabliſhing, as law, what has been obſerved to take place in fact, there are, to my apprehenſion, in this inſtance, inſuperable objections.

From the ſhortſightedneſs of avarice, we might with certainty conclude, *à priori*, that the endurance of leaſe moſt ordinarily adopted, muſt neceſſarily come far ſhort of the mark of public expediency. An increaſing ſpirit of agricultural induſtry moſt certainly gave riſe to the demand for the ſecurity of the endurance

of

of leaſe againſt ſucceſſors to the property, which was obtained by act 1449. What length of leaſe it was cuſtomary for proprietors, at that period, to grant, does not appear. Perhaps the ſhort Roman period of five years might ſuffice, to accompliſh all the views of improvement which could enter into the conception of the ignorant and beggarly tenantry of that age; and it is extremely probable, that the avarice of the proprietor, eager to ſnatch at the profits of ſuch improvement, even before allowing ſufficiency of time to effect them, would never grant a ſuperfluity of time, in general, but would be much more apt to defeat its own end, by its over-eager graſping. It would be ſoon found that a period for improvement, which might ſuffice for a grateful ſoil under the genial climate of Italy, was by much too ſhort for the rugged ſoil and barren climate of Scotland; and the period of endurance of leaſe would of neceſſity be gradually extended in practice. And yet, ſtrange to tell! we find the memorialiſts in favour of a ſhort period of legal endurance, aſſuring us, upon the authority of Craig, Balfour, Stair, &c. who wrote before, or about the date of the entail act of 1685, that *the legal endurance* of the leaſe, that is, (in the only interpretation of their opinion conſiſtent with common ſenſe), *the duration of leaſe which they had obſerved to be moſt common in practice*, had extended, *in the ſpace of two hundred and thirty-ſix years*, only to the ridiculouſly ſhort period (as it would *now* be accounted) of ten whole years. Senſible, however, of the ridicule of adopting ſuch practice into the authority of precedent and eſtabliſhed rule, theſe ſame memorialiſts concede, that this period was protracted, perhaps more than half a century ſince, to nineteen years; that the fact of the ordinary practice was then noted down, by ſuch lawyers as at that time took an obſervation, and was by them conſidered, of courſe, as the legal term of endurance; juſt as the ten years had formerly been ſo conſidered by their predeceſſors: And to this period, *therefore*, would theſe memorialiſts *now* confine the practice of the country. Such ſeems to be the whole ſtrength of the argument of thoſe who ſupport the poſition, of nineteen years being the legal term of endurance, upon the authority of law authors; an authority which, to me, ſeems as inept and incompetent, as would be that of the perſon, who, upon one obſervation of the Nile-ometer, ſhould aſſume it to himſelf to iſſue his mandate to the Nile, *to confine his overflowings, from henceforward, within this remarked height of ſwell.* But, even as to this argument, from the authority of lawyers who wrote about the time of the entail act, and whoſe opinion might regulate the interpretation of the intention of the act—*if, indeed, it were at all allowable to interpret any reſtrictive act by intention, inſtead of literal circumſcription*—

even

even as to this argument, I ſay, its foundation is, *per contra*, denied. The ſame authorities are attempted to be ſhewn as miſconceived, as inapplicable, or as ſtanding on the other ſide; and inſtances are produced of great law authorities, and of conſonant practice, evincing that, even at that period, leaſes of five nineteen years endurance were conſidered as perfectly legal, and that they accordingly were adopted.

The *generally* exiſting term of endurance of leaſe, at any given period, where agriculture is at all underſtood, may ſafely, as I apprehend, be conſidered as *the utmoſt extenſion which the indiſpenſable neceſſities of a riſing ſpirit of agriculture has been able to extort from the reluctant renitency of a ſhortſighted graſping avarice*; and muſt be conſidered, therefore, as falling greatly ſhort of what public expediency would require for the general improvement of the country. If a mere *temporary law*, then, had ever been thought expedient to limit endurance of leaſe at any given period, it muſt have aſſumed a latitude much more extenſive than what was exhibited in the *general* practice, otherwiſe it muſt merely have riveted thoſe fetters which avarice had impoſed upon agricultural enterprize. If a mere *temporary* law, confirming exiſting practice, could, at any period, have had no effect but to check the progreſs of improvement, a *permanent* law, founded on the practice of rude ages, could only have entailed perpetual barbariſm on all ſucceeding generations, to the excluſion of civilization. The authority, then, of mere lawyers (which is ultimately reſolveable into neither more nor leſs, than their obſervation, leſs or more exact, of the exiſting practice of their own times) can never conſtitute foundation for a law (or rather legal interpretation, to have the authority of law), which pretends to aim at public expediency as its object: in this reſpect, contrary to the nature of authority in general, this ſpecies of authority muſt be of the leſs validity in proportion as it is more antique. If, in the ſpace of 236 years from the enactment of 1449 in favour of the ſecurity of agricultural induſtry, the languid progreſs of the ſpirit of enterprize had only led to an effectual demand for the ſecurity of a ten years endurance of leaſe—if, in the more rapidly improving ſubſequent half century, the demand had been raiſed to the period of nineteen years—do any of theſe facts, as obſerved and remarked, conſtitute the ſmalleſt ſhadow of a reaſon, why, during the currency of the laſt half century, marked as it has been by a more than geometrical progreſſion in all kinds of improvement, a demand ſhould not have ariſen for an endurance of leaſe to the triple or quadruple of that of any former leſs enterprizing period?

There is, indeed, in the number of nineteen years, a *ſomething* connecting it with the idea of the Scots leaſe, *by which there would ſeem*

ſeem to hang ſome tale; leaſes are no doubt commonly for periods expreſſed in nineteens. But there certainly was never any enactment, by any proper authority, by which the number of nineteen years was fixed as the limit of the legal endurance of leaſe, elſe nothing could have been ſo eaſy as to produce that authority, which would at once have ſettled the point. Our judges, in appointing a ſolemn hearing for the purpoſe of ſetting at reſt this queſtion, proceeded, ſurely, upon the ſuppoſition, that it had never, as yet, been properly determined: and the memorialiſts, in defence of the ſhort legal endurance, produce nothing more than general reaſonings, to ſhow the neceſſity of a legal endurance; and, as to the fact of nineteen years conſtituting the limit of that endurance, they can produce nothing further than the gratuitous aſſumption of one law writer, founded upon the equally gratuitous aſſumption of ſome preceding one. As no authority, therefore, can be produced for the endurance of nineteen, but the inept and nugatory one of mere law writers remarking the fact of practice in former times,—and no reaſons, in poſitive enactment, or in expediency, have been produced, when called for from men of the firſt abilities in the law department; I conſider the ſolution of the problem of the connexion of nineteen years with the Scots leaſe, as equally competent to a Scots farmer as to any lawyer in the houſe: and I certainly do now conſider it, from the impoſſibility of any other rational ſolution, as having originated in a ſuperſtitious idea of the effect of lunar influence, as remarked in the Eſſay from our Eddleſtone Club, with the ſignature of R. *(inſerted in your No. XXV. page* 19.*)* The idea of lunar influence ought not to be conſidered as any imputation upon the credulity of our native country, when it is conſidered, that the belief in the effect of that influence upon agriculture, appears in every page of the moſt enlightened writers of Roman agriculture, in the moſt enlightened periods of the Roman hiſtory. The idea of the nineteen years leaſe, I am convinced, muſt have originated in the notion of aſſimilating the period to that of a complete proceſſion of the lunar nodes; and nothing elſe, I am confident, but ſuch a ſuperſtition could have procured for this Pythagorean number the reputation of that taliſmanic power which could protect the leaſe againſt the inimical operation of the law, which, being in the hands of landed proprietors, has rather ſhown itſelf unfavourable, in fact, or in interpretation, to leaſes of any conſiderable length of endurance. This prevailing ſuperſtition might give birth to the idea of a nineteen years endurance being a ſecure endurance, and might lead to that prevalence of this period, in practice; which, again, might make lawyers, as already explained, interpret the practice into ſtanding law; and their opinion might reciprocally

give

give currency to the unfounded ſuppoſition. To ſtamp ſuch ſuperſtitious opinion with the current mark of authoritative deciſion, might be equally reaſonable as to enact, that huſbandmen ſhould ſow their beans, as of old, under a certain aſpect of the moon; and might equally be eſtimated as an inſtance of the effect of lunar influence upon human brains.

That the idea of utility never gave birth to the idea of a nineteen years leaſe; but that a ſuperſtitious idea that leaſes could only find ſafety within the encloſure of the magic circle of nineteen, counteracted utility, in confining their duration to that period, will be abundantly evident to thoſe who conſider the numberleſs inſtances of effort to enlarge that term,—with the timid precaution, however, of ſtill conciliating its propitious myſtic influence, in expreſſing the enlarged number of years in periods of nineteens. The notion, however, of its conſtituting a legal endurance, muſt be founded upon better reaſon than mere ſuperſtitious reverence, or the authority of law writers, moſtly aſſumed, or ignorantly imputed and acquieſced in.

To confine what is, in its own nature, progreſſive in improvement to the meaſure it had formerly reached, but which it hath now greatly exceeded, cannot be juſtifiable. The duration of leaſe, which might have ſufficed, half a century ſince, to give room for all that exertion to which the ſkill and capital poſſeſſed by farmers could have prompted them, would by no means be appropriate at preſent, particularly when we conſider, that there hath been greater accumulation, both of farming capital and ſkill, within theſe laſt 30 years, than what had taken place for 300 years before.

To pretend to fix the duration of leaſe upon the footing of public utility,—and, in regard to a matter neceſſarily progreſſive, to allege that antient practice has evinced what is expedient,—and, *therefore*, to lock up the preſent within the limits of the ancient practice, brings to my recollection a tranſaction of the magiſtrates of a Scots burgh, in one of the late years of dearth, which forms a caſe exactly in point. Every body knows that, by laws yet unrepealed, though obſolete, juſtices and magiſtrates have the power of regulating both the rate of wages and the price of proviſions, a power which, it is believed, has no where been aſſumed for the laſt half century. In this burgh, when the price of meal was rapidly riſing every day, the magiſtrates bethought them to enact, that meal ſhould continue to be ſold at the price of laſt market day; they thus endeavoured to decline the imputation of legiſlating for the market, pretending, that not their authority, but the market itſelf had regulated the price. Had there, however, been no other market to reſort to, and had it been poſ-

ſible to enforce ſuch a regulation, I don't think it would have been matter of heſitation to decide, that it was their interference alone, and not expediency evinced by practice, that had prevented the price from riſing to its natural level. If a deciſion were to fix the duration of leaſe below the level of the demand, we have no other market to reſort to. In compliance with the feudaliſm of Scots law, there can be no harm in fixing, by deciſion, that a nineteen years leaſe ſhall be ſubject to the *jus delectus perſonæ*, unleſs where power of aſſignation and transference are clearly conveyed by the leaſe. For it is to be expected, that every proprietor, of ſound head and integrity of heart, will renounce this fooliſh right, ſo benumbing to the induſtry of his tenant, and in which he can have no perſonal intereſt but the diſtant, eventual, and, let me add, the villanous one of creating a forfeiture in his own favour of the profits of the other's induſtry and outlay. In regard to duration, however, the proprietor cannot thus decline the influence of law; ſo as to ſecure the long leaſe which he would chuſe to grant, above the reach of challenge by a ſingular ſucceſſor.

If the practice of the country is to be laid hold of, as evincing the extent of duration of approved utility, it ought never to be the unenlightened practice, raked up from the barbarous antiquity of the barbarous parts of the country; but the enlightened, ſelected practice of thoſe parts which have ſtood foremoſt in improvement. The improvement of the pattern county of Berwickſhire, is, by its original reporter, a gentleman of the law, fairly attributed to the encouragement given to induſtry and outlay, through long leaſes, chiefly of 57 years or upwards; yet the author, with all the laudable prejudices of a lawyer and landed proprietor, betrays no partiality for long leaſes; recommending ſhort ones, as *now* ſufficient in that county, together with a rigorous retention of the *jus delectus perſonæ*. Why not then adopt the duration of this pattern county, whoſe utility has been ſo evidently manifeſted?

Were the noxious entail act of 1685 repealed, the duration of leaſes would be a matter of the leſs importance. Large eſtates would crumble down, by alienation, into ſmall ones, capable of perſonal ſuperintendance; which might probably be highly cultivated, under the encouragement of perpetual and alienable property in the ſubject. Whilſt, however, enormous maſſes of landed property ſhall continue to ſtagnate in the hands of emaſculated proprietors, incapable of vivifying them; but enervated, as to improvement, through the mutilation of their credit, in their incapacitation to pledge their lands for their debts; the improvement of the greater part of the lands of this country muſt depend upon

upon the encouragement of ſecurity, held out to tackſmen who ſhall poſſeſs them in leaſe.

The only intereſt, oppoſing public expediency, as to the duration of leaſe, is the future, and merely eventual, intereſt of expectant heirs of entail; to which is oppoſed the preſent actual intereſt of the poſſeſſing heir, which, in regard to leaſing as well as every other uſe of property, entirely coincides with public expediency. Theſe two intereſts may be conſidered as equiponderant; and, like equivalent *plus* and *minus* articles, in algebraic enumeration, may be both thrown aſide as mutually deſtructive; leaving the matter to be entirely determined upon the footing of public expediency. Public expediency has been in uſe to occaſion large ſtretches, in the liberal interpretation of entails, in favour of the powers of the poſſeſſing heir: it were ſtrange, were they to be kept more ſtinted, as to his power of letting leaſes, more deeply connected with public utility than all his other powers put together *.

If the ſuppoſed opinion of a limitation to 19 years ſhall prevail, ſo far will it be found correſpondent to eſtabliſhed practice, that, it is believed, many queſtions are about to be agitated, that had been never thought of, and many intereſts to be unhinged, which were deemed ſecure.

In regard to the argument, againſt the legal ſupport of long leaſes, drawn from the invalidation of the faith of the regiſter of perpetual rights affecting landed property; it ſurely deſerves not much conſideration. It would ſurely be abſurd to ſacrifice the

* I allude to a variety of inſtances.—To that of Edmonſtone, who was found unfettered by any of the clauſes of the entail upon which he ſucceeded; becauſe, though heir of entail, he was the firſt ſucceſſor to the entailer, and, as ſuch, his proper legal deſignation was *inſtitute*; and the clauſes of entail were not in expreſs words directed againſt the inſtitute.—To that of Stewart *v.* Hume, in which the rights of all the ſucceeding heirs of entail were fruſtrated, by a diſpoſition to his own daughter; becauſe, though there was a ſtrict prohibition againſt ſelling, alienating, or *diſponing*, this *diſponing* was a gratuitous diſpoſition, and not the onerous one of ſale to which the ſenſe of the prohibitory clauſe was rigorouſly confined.—To that of Borthwic *v.* Borthwic, where the eſtate was burdened with a proviſion to younger children, in the face of a prohibition of contracting debt; becauſe theſe childrens title was *gratuitous*; and debt, in rigorous conſtruction, implies an *onerous* title, &c. &c.—I allude alſo to the general rules of interpretation laid down by Erſkine, that a prohibition to alienate, does not infer one againſt contracting debt, and *vice verſa*. After all this, would it not be ſtrange, if a mere prohibition to *alienate* ſhould be conſtructed againſt the tackſman, as implying a prohibition againſt a mere *long leaſe*?

improvement of the country, ſo intimately connected with the ſecurity and length of leaſe, to the more complete ſecurity of this or that perſon who ſhall purchaſe or mortgage upon the lands, and in which the public has little or no concern. At all events, it by no means appears, that ſuch mortgager or purchaſer can be ever ſurprized by a leaſe of which they were not aware. If they have common ſenſe, they muſt conſider the value of the eſtate which they would lend money upon, or purchaſe, before theſe tranſactions; and how they can ſatisfactorily aſcertain this, without inſpection of the leaſes, is not very obvious: though the leaſe goes not upon record, it is not concealed. Beſides, arguing legally, liferent leaſes, in law conſtruction *quaſi* perpetuities, do not go upon record; yet are they ſuſtained againſt ſingular ſucceſſors. It is no novelty in the law, therefore, that leaſes eſteemed *longi temporis* ſhould be ſuſtained, though not recorded; liferents may indeed eventually prove of duration equal to leaſes of three or four nineteen years endurance. If, indeed, it is of ſuch mighty moment, to prevent every poſſibility of ſurprize to purchaſers or mortgagers, from long leaſes; as the regiſter of ſaſines is certainly of mere human origin, we might truſt we have yet wit among us remaining, adequate to the contrivance of ſimilar county regiſters, for leaſes beyond a given length of duration. Indeed, if the preſent rage of entailing goes on, the intereſt of mortgagers and purchaſers will ſoon be entirely out of the queſtion; as no lands will remain affectable by either purchaſe or mortgage.

Upon the whole, the queſtion of endurance of leaſe is a momentous one to the intereſts of general improvement. Are there limits? If there are, what are they? There is neither enactment of law, nor authoritative deciſion. All is uncertain—all depends upon interpretation.

I ſhall not load this Eſſay, already too long, by recapitulating the circumſtances before ſtated, in which leaſeholders may be affected by this queſtion. I remain, with reſpect, yours, &c.

8th Auguſt 1806. F.

FOR THE FARMER'S MAGAZINE.

Extracts from FOURCROY ON THE PHILOSOPHY OF VEGETATION, *Tranſlated and Abridged by a Correſpondent.*

(Continued from p. 305.)

PART VI.

Of the Influence of Water on Vegetation.

1. THE uſefulneſs of water to vegetation is ſo obvious and ſtriking, that moſt naturaliſts have conſidered it to be the *primum mobile*

mobile of growth in plants, and the moſt uſeful material which enters into their compoſition. This opinion has prevailed ſince the experiments of Van Helmont, Boyle, and Duhamel; in which trees were made to grow in pure water for ſeveral years; and confirmed by the experiments of Tillet, which prove that the nature of the ſoils in which ſeeds germinate is almoſt of no importance, and that they require hardly any thing beſides water for their growth and nouriſhment. All the experiments of naturaliſts and huſbandmen unite in proving the vaſt utility of water, and its ſuperior importance over every other material, for promoting vegetation; the explanation of which fact has very much employed the attention of the learned.

2. To prove this principal influence, and vast usefulness of water, on vegetation, to the accurate, but necessarily limited, experiments of philosophers, the equally authentic and extensive experience of the fertility of moist situations, the rich production of irrigated meadows, and the superior productiveness of lands that are situated upon brooks and rivulets over such as are dry and arid, may all be cited. To these may be added, the astonishing fertility of Egypt, owing to the inundations of the Nile, justly considered by the natives as the gift of heaven. Thus, the experience of practical agriculture, and of the productions of different countries, afford incontestable proofs of the influence of water on vegetation; and these facts may be most usefully multiplied, by further observation. We have a further confirmation of this interesting fact in the industrious market gardeners of Paris, who force the soil to give out uninterrupted and astonishingly abundant crops of vegetables, by continually fertilizing the ground by means of vast quantities of water.

3. To explain the influence of water on vegetation, it is necessary to inquire into its manner of acting upon the various organs of plants. It certainly passes into their substance through their roots. When the roots of a withered, dry and shrivelled plant are placed in water, it recovers its freshness and vigour, and renews its vegetation. Coloured liquor perceptibly penetrates and rises up through the vessels of the young and white radical fibres, to which it communicates colour. Every tree or plant grows and passes through its vegetative functions with more or less vigour, in proportion as its roots are less or more furnished with moisture. This water, absorbed by the roots, passes up through the stems into all parts of the plant. It partly exudes from the leaves, which return it to the atmosphere; and the more abundant the production of this transudation, in consequence of the heat and solvent power of the air, so much the greater is the absorption of water by the roots.

4. That germination, if not exclusively, is partly produced by means of water, is perfectly obvious. Seeds, before they can germinate, must necessarily absorb water; and for this purpose, must be placed in moist earth, or some other wetted substance, or upon a moist surface of some kind. Every perfectly dry situation entirely prevents any degree of germination. It does not seem, however, that this process can be produced by the influence of water alone; or that seeds entirely immersed in water can germinate. It is even believed, that the seeds of aquatic plants require, in the first place, to rise to the surface of the water; whence some of them, after germination, sink to the bottom, that they may fix their roots in the mud. It requires to be considered, whether water penetrates into the substance of vegetables only by the seeds during germination, and by the roots during the subsequent process of vegetation; or whether it may penetrate by other means?

5. Most inquirers into the physiology of vegetation have considered the leaves of plants as possessing absorbent pores and vessels, by which they absorbed the water which separates from the atmosphere in form of dew; that this absorption took place chiefly in the night, and during misty or dewy weather, and might, in part at least, supply the place of absorption by the roots, when the ground was very dry. In support of this opinion, they cite the excellent observations of Bonnet, respecting the difference between the two surfaces of leaves; so marked, both in their structure and functions, that when the under surface is laid upon water they remain fresh, or even vegetate; whereas, if the upper surface is laid upon water, they shrivel and die, or at least continue fresh a much shorter time than in the other position. Hence, they conclude, that the under surface of leaves is absorbent, and inhales moisture; while the upper surface, on the contrary, exhales. But we do not perceive by what power the atmospherical moisture can thus be made to penetrate, or how it can be enabled, without pushing back the fluids contained in the vessels of the plant, to penetrate into the vessels already occupied by those fluids, without having recourse to the supposition of a vacuum; which is by no means proved. *

6. In whatever manner, or by whatever passage, water may insinuate into the vessels of vegetables; it is at least certain, that it continually passes through them, penetrating into all their organs,

* The fact, notwithstanding this reasoning, is certain. A man in a warm bath, though his vessels are all full, most assuredly gains weight. In obstructed deglutition, people have been actually nourished by baths of strong broths. *R. r. r.*

gans, and to every point of their substance, and is perpetually renewed; that this circulation and renewal are necessary to the life of vegetables, as the vigour and quickness of vegetation are nearly proportional to the quantities of water absorbed. Since, by the introduction of water into vegetables, its presence in their vessels, and its circulation or passage through them, plants evidently grow, it remains to inquire in what way water is useful for their nutrition: and we proceed to state how far this has hitherto been ascertained by the present state of scientific discovery.

7. Water, which filtrates through the roots of plants, carries along with it every thing that it finds in the soil, and which it is capable of dissolving. In this first point of consideration, water becomes the vehicle for carrying into the substance or organs of plants, every alimentary substance that is contained in the earth or soil in which they grow.

8. It has of late been thoroughly proved, that water, impregnated with certain soluble gases, is greatly more conducive to vegetation, than water deprived of air, by boiling or other means. Hence, snow water, which reabsorbs the air it had lost by congelation, during its gradual meeting, and which sinks, thus aërated, into the ground, to water the roots of plants, produces such quick and remarkable vegetation in early spring. Hence, likewise, the water, from gentle showers, having acquired a high saturation of air in descending through the atmosphere, equally covering and gradually penetrating the soils, very actively contributes to the growth of plants. Hence, vegetation is much less promoted by water from pit-wells or cisterns, than by water which has run for some distance above ground, so as to be saturated with air.

9. The different substances in the soil, which are susceptible of contributing to vegetable nourishment, being in a dry or solid state, are incapable of penetrating by the roots into the organs of plants, unless by the agency of water either suspending those substances in a state of extremely minute division, or by true chemical solution, and thus carrying the particles of those various matters within the substance of plants, so as to serve for their nourishment. Hence, in proportion to the quantity of water which is supplied to, and absorbed by plants, their nourishment from those other matters which it conveys must be the more abundant. It will be afterwards seen, that even silicious earth is carried, by means of water, into the substance of plants, as that element is found in the analysis of vegetables, after the separation of the soluble, saline, inflammable, and other materials of their composition.

10. In thus entering perpetually into the vessels of vegetables,

to which it carries the various substances necessary for augmenting their component materials, and causing their growth and increase, it is obvious that water fills, distends, swells, and lengthens those vessels or canals; supporting and preserving the cellular and vascular plexus of their structure, by a proper distension of their parts. Hence, in long droughts, or when burnt up by scorching winds, or the too fierce action of the sun's rays, plants become withered or faded, their leaves supple, hanging down and ready to fall off, and threatened with speedy death; but, on the supply of sufficient moisture, they quickly revive, recover their erect posture and healthy appearance, and resume their growth with more vigour than before.

11. Water obviously enters undecomposed into the substance of plants, and constitutes one of their constituent elements, forming the basis of the sap, and of all the juices which they contain, and serving to hold in solution their acids, salts, extractive matters, mucilages, and other substances, to be afterwards enumerated. So far only was the use of water known to the older chemists, who even conceived it to exist in a solid state in several vegetable productions. But modern chemical science has pointed out still more extensive uses of water in the economy of growing vegetables.

12. From the observations of Lavoisier and Berthollet, and the experiments of Ingenhousz, in which leaves, immersed in water and exposed to the sun, were found to give out oxygen gas, it has been believed that water was decomposed in the vessels of plants, and particularly in those of their leaves; that this decomposition was assisted by the influence of light, especially by that of the sun; and that, by this decomposition, the hydrogen of the water was fixed in the plants, contributing to the formation of their oils, extractive matters, and colouring substances; while a part of its oxygen was fixed, at the same time, to constitute their various oxyds, as sugar, mucus, fecula, and others, and their peculiar acids: the greater portion of this oxygen of the water, after separation from its hydrogen, being dissolved by the caloric of the light, assumes the form of gas or air, and escapes, often with considerable rapidity, from the surface of the plants, more especially of their leaves.

13. By this discovery of the decomposition of water in the leaves of vegetables, through the influence of the solar rays, the great usefulness of water in vegetable economy, and a source of the two principal component elements of vegetable substances, are ascertained. We thus learn how the salubrious atmosphere is perpetually renewed by the mechanism of vegetaion, which restores to it, by what may be termed decombustion, the oxygen

of

of which it is continually deprived by many causes of an opposite nature. By the knowledge of this simple phenomenon, we are enabled to explain a number of facts and complicated circumstances, which were formerly unknown, or at least the connexion of which with physical science was not understood.

14. It must not however be concealed, that this decomposition of water by the leaves of living vegetables, assisted by the influence of solar light, is denied by some modern philosophers. Their reasons will be brought forward and considered in the sequel of this essay.

PART VII.

Of the Influence of Carbonic Acid Gas, and some other Gases, upon Vegetation.

1. Since the discovery of the different gases or elastic fluids, and their several properties, various attempts have been made to ascertain their influences upon vegetation; and it was soon determined that ordinary atmospheric air alone, or oxygen gas, was capable of sustaining the life of vegetables; thus establishing a singularly distinct analogy between the three great phenomena of vegetable and animal life and combustion.

2. But, in the course of these researches, it was soon perceived that the purity of air was by no means so necessary for vegetable life as for the breathing of animals; as vegetables continue to live in air that is so much contaminated as to be unfit for the respiration of animals: That most vegetables even grow with greater vigour in air slightly impure, than in that which is most perfect; and that this foul air, which occasioned a more vigorous vegetation, was thereby sensibly amended, at least at the commencement of this experiment, instead of becoming more foul, as is always the case when employed for combustion, or for the breathing of animals.

3. It would be proper to determine, by numerous and accurate experiments, what species of contamination is thus serviceable to vegetation; what gas added to, or abstracted from, the atmospheric air, produces this singular effect; and by what means this is accomplished. Although this investigation is by no means completed, yet some important facts have been ascertained, which may partly serve to resolve this important inquiry.

4. By analyzing air that had been spoiled by animals, and which was still serviceable for vegetation, and by artificially compounding gases in which plants were made to vegetate, it was found that this advantageous vegetation took place in air which

contained

contained a greatly larger proportion of carbonic acid gas than exists in ordinary atmospherical air. Ingenhousz found, that though azotic and hydrogen gas could neither of them sustain vegetable life, yet when either of them was mixed with a certain proportion of carbonic acid gas, vegetation was then supported. Humboldt has since found that the addition of eight or ten hundredth parts of carbonic acid gas, to common atmospheric air, formed a mixture highly conducive to vegetation; and that such was the actual state of the air in certain places of some mines, in which some entire families of cryptogamic plants grew and flourished with great vigour.

5. The beneficial effects of carbonic acid upon vegetation is farther evinced, by the superior influence of water which is impregnated with that acid, over simple water, when both are used for watering plants. There is hardly any water, that filtrates into the ground through the superior stratum of vegetable mould, but contains some portion of carbonic acid; and such water is, not only by no means injurious to vegetable life, like pure carbonic acid gas, but even eminently contributes to the energy of vegetable growth.

6. Whether the carbonic acid be applied to plants, in mixture with the air in which they grow, dissolved in the water which is absorbed by their roots, or in the aqueous vapour, or the dew which moistens their leaves, its influence upon their growth and nourishment seems owing to its decomposition, probably operated within the organization of the leaves, according to the experiments of Ingenhousz and Sennebier. In this decomposition, which is analogous with that which takes place when phosphorus is heated along with carbonate of soda or of lime, the carbon of the carbonic acid, separated from most part of its oxygen, combines with hydrogen and other elementary substances, and with a portion of oxygen, to form the immediate materials of vegetables, to be afterwards noticed. The greater portion of the oxygen of the carbonic acid, which amounts to 72 parts in the 100 of its composition, set free by this decomposition, is disengaged in an elastic aëriform state, as oxygen gas; and, mixing with the atmosphere, serves to restore its powers of supporting animal life and combustion, which are perpetually depriving the atmosphere of its oxygen gas.

7. In the above explanation of the influence of carbonic acid gas upon vegetation, we discover one source of the carbon which exists in plants, and which often composes the principal part of their constituent elements: And, while this explanation, of the manner in which carbonic acid is absorbed into the organization of vegetables, gives a satisfactory reason for the salutary influ-

ence

ence upon vegetation, of the carbonic acid gas contained in what is termed foul air, it likewise explains the formation of those carbonaceous compounds, which are so abundant among the constituent materials of plants; which formerly was among the most concealed and difficultly explicable of the phenomena of vegetable physiology.

8. The remarkable effects produced by carbonated hydrogen gas upon plants, is probably referable to what has been already explained respecting the influence of carbonic acid. Carbonated hydrogen gas kills plants very soon, when plunged into it in a state of purity; but, when mixed in certain proportions with the atmospheric air in which they grow, it very obviously contributes to the vigour of their vegetation. In certain circumstances, where this gas is disengaged from marshes, stagnant waters, peat mosses, rotten dunghills, or the liquor which drains from them, stables, and the like, and is in circumstances to act upon plants, it occasions them to grow with remarkable quickness, and often communicates to them very sensible taste and smell from its influence and abundance. That this effect is produced by the same causes, and belongs to the same theory, with that already advanced respecting the influence of carbonic acid gas, is too obvious to require any detailed explanation.

9. The influence of carbonated hydrogen gas upon vegetation, is even more obvious and rapid in its operation, than that of carbonic acid gas; which is owing to the carbon in the former being more disengaged, and more ready to penetrate into the vessels of plants; than in the latter, where, united with oxygen, it is more intimately connected with that element, and more difficultly separable from that connexion. *

PART VIII.

Of Vegetables, considered as Chemical Instruments.

1. Vegetables may be considered as living beings, destined by nature to begin the organization of simple matter, so as to unite together the simple elements in triple compounds, with which nothing analogous is found in fossil bodies, properly so called; thus fitting

* It might, perhaps, be added, that this more rapid effect, of carbonated hydrogen gas, may proceed from its containing two of the principal nutritive materials of vegetation, already united, and almost in the state of a hydro-carbonous oxyd, of which so many of the immediate materials of vegetables is so largely composed.

fitting the primitive materials of the earth and of the atmoſphere, to become the pabula of life; and thus conſtituting the intermedium, or uninterrupted communication between minerals and animals: inſomuch, that animal life could not exiſt or be carried on without the intervening operations of vegetation.

2. Hence plants actually are chemical inſtruments, by which nature operates numerous combinations, which could not take place without this apparatus, or which could not exiſt, independent of vegetable organization. Nature, equally admirable in the ſimplicity of means, as in the conſtancy and regularity of operations, in this ſingle proceſs, produces at once the organization and growth of vegetables, and that appropriation or combination of the ſimple elements of matter, which is neceſſary for animal life. One of theſe operations is therefore the neceſſary conſequence of the other; and they both neceſſarily accompany, and are dependent upon, each other.

3. Vegetable analyſis, therefore, muſt not only conſiſt in the chemical examination of ſubſtances extracted from dead plants; it ought likewiſe to conſider carefully thoſe ſubſtances which are contained in living vegetables, and which participate in their vital motions and functions; it muſt inquire how thoſe various changes are operated within the organization of plants, the ſucceſſive elaborations, or decompoſitions and recompoſitions, which are there produced, and the uſes to which each of theſe is applied in the economy of vegetable life. This conſtitutes the whole ſeries of chemical phenomena in living vegetables; partly already treated of, and partly to be explained in the ſequel.

4. Before the modern pneumatic diſcoveries, chemiſtry poſſeſſed no means of inveſtigating, or even of conceiving, this beautiful department of natural ſcience. The earlier experiments, from Hales to Duhamel and Bonnet, ſeem to belong to a different diviſion of ſcience, and not to chemiſtry; which latter, too modeſt and too limited in its powers, ſolely confined its exertions to extract, purify, ſimplify, and preſerve the various materials of plants, chiefly on purpoſe to appropriate theſe to medicinal purpoſes. It is only ſince the diſcovery of the elaſtic aëriform fluids or gaſes, that an intimate connexion has taken place between chemiſtry and vegetable phyſics; and that it has become obviouſly impoſſible to inveſtigate or comprehend the mechaniſm of vegetation, unleſs by connecting the older facts and obſervations with the data and inquiries of chemical analyſis.

5. Of late, chemical apparatus, and thoſe inſtruments and operations named pneumato-chemical, have been employed for inveſtigating the phenomena of vegetation; to aſcertain what ſubſtances were abſorbed by vegetables, from the earth, from water, and from the

the air; what they procured from light and from caloric; how thoſe various acquiſitions and matters contributed to their nouriſhment; and how they became converted into vegetable compounds; in fine, to determine what actually conſtituted vegetable life. This has opened a new field of inquiry to ſcience, of immenſe extent, in which only a few ſteps have hitherto been advanced. It is enveloped in much greater difficulties than the chemical analyſis of the materials of dead vegetables; and conſequently, a rapid ſketch of theſe firſt attempts to diſcover the ſeries and connexion of facts, in this new branch of chemical ſcience, has only been here attempted.

PART IX.

Of Vegetable Nouriſhment in general.

1. In endeavouring to explain the ſtill myſterious operations of vegetation, the firſt and moſt important object of inquiry is, to determine by what means the ſimple or inorganic elements of foſſil and aerial materials, which are received into the veſſels of plants, are there changed into vegetable compounds. By what means, from thoſe ſimple elements, or binary compounds, vegetables form thoſe other matters by which they are nouriſhed, increaſed in ſize, elongated, and expanded; and which thus give occaſion to all the ſucceſſive phenomena of vegetable life.

2. It may be obſerved, in the outſet of this inveſtigation, that in moſt of the circumſtances of vegetation, the materials which ſerve as primary nouriſhment to plants, ſeem almoſt reduced to nothing, when comparing the tenuity of thoſe materials with the ſolidity of vegetables. A number of vegetables grow upon hard and ſolid ſtones, from which they can derive nothing, or next to nothing: Such is the primary vegetation of lichens and moſſes upon quartz and granite; where, it would appear, their whole nouriſhment muſt be derived from the air, as it cannot be conceived that ſolid ſilex could contribute to their nouriſhment.

3. The ſame obſervation may be extended to thoſe vegetables, and even trees, ſometimes of conſiderable ſize, which grow in pure ſand; or which grow, and puſh deep roots, in compact gritſtone rocks, or in the fiſſures of exceſſively hard lavas. After theſe inſtances, we need not be ſurpriſed to find the ſtones of buildings covered with vegetation, where the contact of air alone ſeems ſufficient to their exiſtence.

4. Were it poſſible, from theſe general and eſtabliſhed facts, to conclude that ſolid or powdery nouriſhment was not indiſpenſably neceſſary to vegetable life and growth; the ſame opinion cannot be

be entertained reſpecting light, caloric, air, and water. Facts are ſufficiently numerous and well-eſtabliſhed, to prove that thoſe elements, ſo abundant and univerſal around the globe, on its ſurface and in its cavities, are indiſpenſably neceſſary for the exiſtence of plants; and that, in defect of more ſubſtantial nouriſhment, often refuſed by the ſteril ſoil in which plants grow, they procure the neceſſary means of life and growth, in thoſe vaſt ſtores of matter preſented by theſe enumerated elements. Hence we have examined in ſucceſſion, the particular influence of each of theſe primitive ſubſtances upon vegetation.

POSTSCRIPT BY THE TRANSLATOR.

To the Conductor.

Having now given a tranſlation of what may very properly be called the *Chemical Philoſophy of Vegetation*, it ſeems proper to mention, that having abſtracted it, perhaps without ſufficient previous conſideration, from a very extended ſyſtem of chemical ſcience, where ſelection, arrangement, and condenſation, ſeemed neceſſary; I am not thoroughly ſatisfied with the arrangement that has been choſen. This, however, is not very material; and may eaſily be corrected, upon ſecond peruſal, by your intelligent readers.

There are other parts, of the ſame great ſyſtem of chemiſtry, that refer to this intereſting ſubject of vegetation, but which do not ſo immediately conſtitute any portion of the particular object of the preceding communication. Theſe I may trouble you with at a future period; and at preſent ſhall only mention them, as reducible under the three following heads, without any view towards an arrangement of theſe. 1ſt, The anatomy and functions of vegetables. 2d, Modifications of vegetables by art—principal changes they are ſuſceptible of—and their diſeaſes. 3d, Chemical compoſition of vegetables. In offering theſe hereafter, for your conſideration, I ſhall ſend each ſeparately; but have not, hitherto, determined their order, as ſome of them require a conſiderable condenſation or abridgement, to reduce them under due bounds for your uſe.

From the chemical philoſophy of vegetation, now ſubmitted to you and your readers, ſome uſeful corollaries may be drawn, that are not indeed unknown or new to agriculturiſts, but which the ſeries of this communication may have aſſiſted to place in more forcible lights. Some of theſe I ſhall uſe the freedom to ſtate in general terms, without any lengthened diſſertation.

1ſt,

1ſt, The uſefulneſs of fallow, as expoſing the vegetative ſoil or mould to the influences of the atmoſphere, from whence it is thereby enabled to derive or abſorb ſeveral of the pabula of vegetable nouriſhment, ſo clearly pointed out in this communication; and, as of kin to fallow, the advantage of winter ploughing, by which the ſoil is mellowed by froſt, and enabled to abſorb from the air and water.

2d, The rigid propriety of deſtroying weeds; or, in other words, appropriating the ſoil, as excluſively as poſſible, to the nouriſhment of the particular crop it is wiſhed to produce. As well may a farmer expect to feed to the beſt advantage, the largeſt number of ſheep or cattle upon a given quantity of paſture, while the horſes, cows, and pigs of all his neighbours perpetually roam at liberty on his grounds, as to raiſe the beſt crop of wheat, beans, or other ſelected vegetable, while the ſoil, and conſequently the vegetative nouriſhment, which ought to be appropriated to that crop, as excluſively as poſſible, are occupied and fed upon by a multiplicity of devouring weeds.

3d, The high utility of collecting, preſerving, and applying to the ſoil, every kind of decompoſible or putreſcible material, whether of vegetable or animal origin, that can be procured, conſiſtent with prudent economy. Beſides the uſefulneſs of ſeveral manures of mineral origin, as lime, chalk, marl, clay, ſand, peat, ſoot, &c. &c. &c.

Theſe three heads certainly branch out into a multiplicity of ſubordinate conſiderations, and are each ſuſceptible of giving occaſion to extenſive and moſt intereſting eſſays. But the whole ſubject of fertile aration may be comprized under the following ſhort maxims:

Plough diligently, Weed thoroughly, Muck liberally.

R. r. r.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Inſtance of Preſerving a Tree nearly barked.

SIR,

THE following fact deſerves to be recorded as a hint for preſerving trees that have been almoſt ſtripped of their bark.

In ſummer 1804, I had a cow that had acquired the bad habit of eating the bark of trees. She then ſtripped a willow tree of the height of 30 feet, and girth of 18 inches, and an elm of the height of 12 feet, and 9 inches in girth, of the whole of their bark from the ground to the height of about 6 feet, leaving only a ſmall fillet or riband, of the breadth of about the fifth part of the

the bark of each. This fillet was alſo torn away from the ſtem of the tree; but it remained attached to the bark above and below.

On obſerving this accident, I had little hopes of preſerving the trees, well knowing that a tree which loſes its bark muſt infallibly die; but I tried the ſcheme of applying cloſely the looſe bark to the ſtems of the reſpective trees, and tying them in firm contact, by a cord entwined around the trees.

Both trees are now as vigorous as ever. The fillet of the bark of the elm adhered, after ſome weeks, to the tree; and a narrow piece of new bark, of the ſame breadth as the fillet, formed under it, which preſerves the tree, although the bark that was looſe has died, and ſince rotted away.

As to the willow, although its looſe bark has never adhered to the body of the tree, yet the bark lives ſeparate from the trunk; and, having become four inches thick, I preſume will in time become both trunk and bark, and that the old trunk will entirely rot away. A. S.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Propoſals for Inſtituting Evening Schools for the Inſtruction of Farm-Servants.

SIR,

PERHAPS the following remarks are ſomewhat foreign to your work; but, emboldened by your unlimited endeavours to increaſe the proſperity and happineſs of your country, I lay them before you, in hopes that you will give them a place in your moſt valuable Magazine.

Learning is univerſally acknowledged to be of the utmoſt importance; and it is from the aid of ſcience alone that all the improvements in a civilized nation claim their origin; and, indeed, it is the only *real* diſtinction between the ſavage and the inhabitant of the civilized world. Now, to ſpread this important, this ſacred light, over the lower ranks of ſociety, is ſurely an object worthy the attention of the public. In this country, this is in a great meaſure accompliſhed, by the noble inſtitution with which it has ſo long been bleſſed, and which gives it a preference to ſo many others,—I mean, pariſh ſchools. Yet, valuable as this inſtitution is, there are many who have not acceſs to it in their youth, on account of the poverty of their parents, and who, being obliged to ſpend their early days in ſervice, grow up to manhood in complete ignorance. Many of the farm-ſervants are of this claſs; and it is to them, more particularly, that the following

ing observations are directed. The utility, the importance, and the *necessity* of adopting a plan for their instruction, should be intimated from the pulpit of the parish; and even though a sermon or two were entirely devoted to shew the great benefit that would result from the institution, there would be no harm done. I have often observed, that what *the minister* orders, whether in civil or religious matters, is, to the lower ranks of the country people, always law; and, indeed, so it ought; for, as the parson is the most *learned* man in the parish, if he is not also *the wisest*, my proposals are naught. This being done, (and if it were really done, I make no doubt that it would instantly be adopted), a teacher is to be procured, and a schoolhouse hired or built, though the latter would be preferable; and the farmers of the parish would never hesitate in procuring them one, which could be done with little expence. The minister is then to draw up (after having consulted with the farmers on the manner most advantageous for both parties) certain regulations and proposals, which he shall find best, and which he is to read from the pulpit. All who give their assent to these, are to be admitted into the society. Every one is to pay so much *entry-money*, (and, owing to the present high rate of their wages, they can well spare it), and so much *quarterly or monthly*, which is to be devoted to the purposes of paying their teacher, and purchasing books to constitute a library. If the schoolmaster of the parish do not choose to officiate, some other person will be found, at a moderate rate, who can supply his place; and this will be easily accomplished, as it will require no deep erudition to teach writing, arithmetic, and reading, which is all that is requisite. Could a spirit of instruction once be diffused among them, the effects would be great; and, in order to do this more effectually, I would have a public examination to be held every year, or twice a year, by the minister and farmers, and prizes to be distributed to the most deserving. Should this take place, how amiable would be the change! Instead of spending their idle hours in *sleeping*, or in nonsense and obscenity, we should behold regularity and decency in every rustic assembly; we should hear the humble country man talk of the heroes of old; catch patriotic inspiration from the actions of his great forefathers; and, 'to hardy independence boldly bred,' laugh at the threats of the insulting foe;—while Wisdom would extend her protecting hand, and claim the nation for her own! These are but a few detached and hurried remarks; but, if you insert them, I shall perhaps trouble you again upon the subject, when I have more leisure. Yours, A FRIEND TO AGRICULTURAL HAPPINESS.

Banffshire, 1805.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Remarks on the Comparative Value of Land in the Counties of Wigton and Haddington.

SIR,

THE value of land is an abstruse subject, and one on which little light can be thrown by arguments and figures. An ingenious mind, especially if aided by a fertile imagination, may be capable of demonstrating the worth of every sort of soil, or proving its relative value in the scale of local circumstances; though, after all, there may hardly be a shadow of truth in the accompanying conclusions. The reasoning, in such cases, depends altogether upon the first figure assumed; therefore, the slightest error in the foundation may render the superstructure of no utility. In fact, rural and political arithmetic, are sciences wherein deception may be easily practised; therefore generally slighted by rational and practical economists.

I am led to these remarks by perusing a paper 'On the Value of Land in different Districts,' which appeared in your Magazine, (Vol. VI. p. 275.) signed '*A Galloway Farmer.*' In that paper, the author attempts to prove, and really he argues with much plausibility, that soils of equal quality are capable of paying more than double rent, if situated in the neighbourhood of Haddington, than if situated in the vicinity of Wigton. With your permission, I mean at this time to analyze the arguments urged in support of the above proposition; and hope to shew, that the principles, argued from, are almost in every respect unfounded; consequently, that the conclusions drawn from them are calculated to mislead the public, and create dissatisfaction betwixt proprietors and occupiers of land in these districts.

In the *first* place, a Galloway farm, containing 240 acres, of which 144 acres are annually under crop, is supposed to be depreciated in its worth no less than 45*l.* *per annum*, through the whole endurance of the lease, on account of the inferiority of its houses. Before this supposition can be allowed, the author must prove, that houses are no burden on the Haddington farmer, or that every expence attending their erection and upholding is defrayed by the landlord. It is presumed that such a proof would rather be a matter of difficulty; nay, more, that in respect of household accommodation, it may turn out that farmers in the one county are much upon a par with those in the other. It is not here meant that farm-houses and offices are not more substantially and commodiously finished in Haddington than in Wigton county. This is not disputed. But by whom were these superior accommodations provided? Generally speaking, not by the landlords, but by the tenants, who, in every case, are

are taken bound to support and keep in repair every house erected on the premises possessed by them.

I speak for myself when I say, that, of two farm steadings in my possession, every office and cottage on one of them has been rebuilt at my sole expence, and that, on the other, more than one thousand pounds Sterling has been expended in erecting new buildings, over and above the sums, at different times, given in aid thereof by the landlord. The time was, and that not long ago, when East Lothian tenants were not better provided with houses than their Galloway brethren; though, in nine cases out of ten, they may thank themselves for their present superior accommodation.

In the *second* place, no less a difference of value than 102l. yearly is put down on account of the superior condition of farms, at entry, in the one county above that of the other; and this assumption is made, under the supposition that East Lothian farms are generally in such a condition as to admit a regular rotation from the outset. Here it may be remarked, that the author displays small knowledge of East Lothian rural matters, a latitude of management having hitherto been there allowed inconsistent with any thing like a perfect or regular rotation at the conclusion of leases. On a few farms, it is but fair to acknowledge, that something of this nature has been attempted by restrictive covenants, though with little success, unless so far as related to grass land. In valuing a farm lately, which was possessed under as strict covenants as are to be found in East Lothian leases, it occurred to me that, at least, one year's rent would be lost in the first three years of the new lease, notwithstanding both a fallow break and grass ground were to be left by the old tenant. In a word, it is not to be expected that any tenant at departure will have his matters arranged in the like perfect manner as if he was to continue in possession; and, if so, under strict covenants, matters will not be better when discretionary management is exercised. On these accounts the pen may be drawn through this huge article of deduction.

In the *third* place, the superior advantages of climate in East Lothian are described. Here I am ready and willing to agree with the author, though not entirely for the reasons which he assigns, with respect to its superiority. That the climate is drier than that of Galloway I admit; that cultivation may be more successfully executed, I am not disposed to deny; and that grain may be better ripened and perfected is acknowledged in the fullest manner. Having thus generally agreed in principles with your correspondent, I am necessitated to differ with him as to the extent or amount of the concomitant benefits.

1. I see no reason for supposing that an extra plough will be required on 240 acres of land in Galloway above what is necessary in East Lothian; and, on that account, object to the sum of 60l. stated as the annual difference on that head. An East Lothian farm of clay land, where 144 acres, the quantity specified, are annually sown with grain, is rarely cultivated with fewer than five ploughs; and I believe this is something similar to the strength on such farms in Galloway. I may be wrong here, not being particularly acquainted with that district; but I cannot figure the cause which would render such an augmented strength necessary. The management of clay soils is a difficult business in both districts, and a greater strength than called for on light soils is absolutely indispensable in such cases.

2. That land in the one district yields one-sixth part more produce than in the other, I am neither prepared to deny nor to acknowledge; facts being wanting from which a reasonable conclusion can be furnished. Abstractedly speaking, I would be led to declare, that the quantities produced in each, *where the management is alike perfect*, may come nearer than the qualities; or more plainly speaking, that there will be smaller difference betwixt the number of bolls or bushels produced, than in their value at market. The author reasons on this point as if East Lothian always produced a good, and Galloway a bad, crop; whereas, in many seasons, the dryness of climate in the former is unfavourable to every thing, except winter wheat. Owing to this circumstance, oats often turn out an inferior crop both as to quantity and quality, whilst the leguminous varieties are stunted and almost destroyed.

3. I am inclined to believe, if Galloway grain was naturally equal in value to that of East-Lothian, it would bring a similar price in the market, notwithstanding of local situation; and, on this account, protest against all the deductions claimed for merchants' profits, freights, insurance, &c. which are estimated in the scale at no less than 23½ per cent. of the original amount. Had the author reflected for a moment, he would not have claimed such deductions, because the same are equally due upon every boll of East-Lothian corn exported; especially as this exportation takes place in a threefold degree more extensively than in Galloway. Does he know of the great quantities shipped at Dunbar and North Berwick for London, Leith, Grangemouth, and Glasgow, on which merchants' profits, factors' fees, &c. are as justly due as upon what is shipped in any other district? But here a question occurs, who pays all charges? Certainly not the exporter, but the importer, or, more properly speaking, the consumer; and it is certainly owing to this circumstance

stance that corn is generally higher priced on the western than on the eastern coast. Were our author correct, the freight of tea from China, and the duties paid on importation here, might be assigned as causes which contributed to lessen the value of Chinese lands.

4. Whether the intrinsic worth of Galloway grain be 6½ per cent. less than that of East Lothian, is not easily ascertained. I shall grant that the difference extends to that amount, and would not have found fault had a higher estimation been made. This difference, however, may be regarded as the whole that can be claimed in a comparative estimate; for the ready money market at Haddington is more an object of convenience than of real benefit. The corn purchased in that market is generally, either in a raw or perfect state, carried to the metropolis; and as meal and bread are usually cheaper there than on the western coasts, the apparent higher price of grain at Haddington can alone be attributed to the superior value of the raw commodity, not to any particular merit of the place where it is vended.

In the *fourth* place, though straight ridges are of great use in the ploughing of land, and executing other operations, yet 70l. per annum of deduction, or 1470l. during a twenty-one years lease, seems a most unreasonable abatement on that account. East Lothian, about fifty years ago, was almost all in serpentine ridges, and, in several places, such still remain, probably because the owners are not of opinion that their crops are thereby diminished; but, when straighting took place, the tenantry alone performed it, though the Galloway farmer seems to think that none except proprietors are qualified for such a task.

For the above reasons, were I to form a comparative table betwixt the value of *equal* clay soils in Wigton and Haddington shires, I would be disposed to throw out every article stated by your correspondent, except an abatement for climate, and a small compensation for serpentine ridges, which certainly are inconvenient, and cannot be levelled at less than forty shillings per acre of expence. I am inclined to put more stress on the circumstance of climate affecting the quality of grain, than he allows: therefore, if one pound five shillings per acre is substituted for three pounds nine shillings, as the difference in value between equal soils in both counties, it may be presumed that I am not wide of the mark.

With regard to turnip, and light, soils, it occurs that the climate of Galloway is much better calculated for such than for clays; therefore, the several crops, cultivated thereon, may be considered not as inferior in quantity to those raised in East Lothian. To be sure, the barleys may be regarded as of less value, though no reason is afforded for viewing oats in that light. This

grain thrives best in a moist climate; so will all the varieties of grasses; nor will that valuable esculent the turnip prove less weighty on that account. That there is not a market at hand for fat stock is admitted; but, Galloway being an extensive breeding district, there is small doubt but the using of turnips in rearing of young stock would be as profitable a business as feeding for the butcher. At all events, if ten shillings per acre is stated as the fair difference betwixt the light soils of Wigton and Haddington, chiefly on account of the barley crop, there will not be a great error committed. This estimation is made on the supposition that each are of equal quality, the fundamental proposition on which your correspondent argues.

You will please attend, that I have uniformly gone along with your corresondent in supposing the soils to be of equal qualities to which the estimates apply. I am, notwithstanding, well aware that there may be a real difference betwixt the best soils of Wigton and Haddington; though, in the way he argued the question, I am bound to consider them as precisely of the same natural quality. I am yours, &c. ARATOR.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On Free Martins.

SIR,

THERE are, I am sure, many of your readers who do not know, that, when a cow produces twin calves of different sexes, the female is generally esteemed incapable of propagation, and called a *Free Martin.* The first time I ever heard of such a creature was about fifteen years ago, when an Edinburgh flesher advertised for sale at his stand, '*that rare animal a free martin, bred by Mr Walker of Wooden, near Kelso.*' Mr Walker was assured by the flesher's servant that she wanted the uterus; and therefore it was impossible she could ever have bred.

In Holstein, Jutland, and Sleswick, where the pastures are very rich, and the cows plentifully fed through the winter, it is, I am informed, very common for them to bear twins; but I need not go beyond our own neighbourhood for instances in this case.

Mr Campbell of Shawfield has had them frequently at Woodhall, and kept them three or four years to ascertain the truth of the general opinion. None of them has ever bred, nor, so far as was known, admitted the addresses of the bull.

The late Mr Hepburne of Middleton kept one five years to satisfy himself whether she would breed. She never shewed the least inclination for the male, and he ordered her to the butcher.

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I cannot speak with certainty to any of them having been ever known in the Highlands, or islands upon our west coast; though I have been very particular in my inquiries at gentlemen, the most likely to be informed, if such had been produced upon their estates. Perhaps, there, the food is not in such abundance as to encourage the conception of twins. In Iceland, where fodder is scarcer, and the winters longer and much more severe, cows do not breed at all, and the species is preserved by importation.

In Cheshire and Ayrshire, the greatest dairy counties, I believe, in Britain, where the cows have plenty of food at all seasons, twin calves are very common, and free martins by no means rare. Some cows of Lord Eglintoun's factor had twins seven times within these few years. Mr Samson at Finlayston, near Ochiltree, kept a martin four years and a half, when, continuing barren, and having never shewn any inclination for the male, he had her killed for his family. He declares, as the Edinburgh flesher did of Mr Walker's, that she wanted the uterus. There is at this moment in Lord Eglintoun's parks at Ardrossan, a free martin seven years old. She has never been observed to flirt or coquet with the bull, nor the bull to pay her the least attention, though they have long pastured together. His Lordship considers the fact of free martins not breeding as perfectly well established; and it is only because of the preference he gives to the beef of aged cattle, that she has been suffered to live so long.

With these facts upon my mind, what could I do, when, about six weeks ago, I heard of a free martin of three years old, in the possession of Charles M'Meikan Buchan Esq. of Killingtringan, having produced a calf on 23d March last? I went to Ayrshire on purpose to make inquiry about it. I saw Mr M'Harg at Black Byers, who bred and sold the martin and her twin brother to Mr Buchan. I examined the girl who gave them their milk, and cross-questioned her in presence of her father and mother. I conversed with several persons in the neighbourhood; and, lastly, I had the honour to correspond with Mr Buchan upon the subject.

They all agree in stating, that the martin and her twin brother are very like each other, save that she is polled, and he has horns; that they never were a hundred yards asunder till she was sent to Ayr to calve, as, from a seeming attachment, they always pastured one near the other; that they were never in other hands than those of the breeder and Mr Buchan; that there is not the smallest probability of her having been changed, or of her not being the actual twin sister; that from their colour, all brown, the herd would certainly have detected any substitution, for which, indeed, there could not be any object; and that their continued

marked attachment establishes beyond a doubt, that nothing of the kind had been done. They are both healthy, thriving, and kindly feeders. The martin has a handsome, well placed, though not large, milk vessel; is in high condition, and, for the first calf, a good milker. In the end of May, when more than two months calved, she had not again required the bull.

Mr Buchan has another martin of the same age, with whose history he is not so well acquainted. She has very little appearance of teats, and, though in good condition, hardly any of udder. She has never shewed any inclination for the bull, and Mr Buchan has no doubt she is to abide by the established rule of not breeding.

It happens sometimes, but I believe extremely seldom, that a quey, though not a twin, does not breed; and I once saw a bull, of a valuable breed, which could not have any posterity; but it was strongly suspected that some trick had been played with him in his calfhood.

Nature is at times sportive and playful. We are acquainted with irregularities in many of her works. It is not thirty years since a mule in Angus or Aberdeenshire produced a foal. This is quite contrary to the law of mules. A notorial attestation of the fact was sent by Smellie to the Count de Buffon. Buffon often mentioned it in conversation, but never, so far as I know, noticed it in his writings.

Hermaphrodites are very common in the sheep genus. I have one, a lamb, in a flock of thirty new Leicester ewes, that pasture at my door, and another upon a rough hill attached to my farm. My herd assures me they never breed.

About fifteen years ago, I saw an Irish stirk of this description in the market at Dumfries. The owner said the price was a couple of guineas. I had a mind to purchase it for dissection; but a friend, whom I consulted, thought it too dear, and I missed the bargain. It was sold, amongst a parcel of others, to a Mr Wilson, a drover in Lanarkshire, who carried it to the Edinburgh market. He there lost sight of it; and though some little attempts were made, at my expense, to recover it, they were not successful. When it made water like an ox, it was in the ordinary way; when like a cow, the stream ascended in a direction not twenty degrees removed from perpendicular.

We have heard of like irregularities in the human species; and I well remember a servant lass at Banff——but, were I inclined, I am sensible you would not allow me to pollute your chaste page with any improper communication.

The not breeding of the free martin is a departure from the general law of nature, that every individual shall be capable of propagating

propagating its kind. The solitary instance of Mr Buchan's having bred, is a departure from the law of martins.

The sterility is confined to the female. Shawfield gave the twin-brother of a martin to one of his farmers, who bred from him for several years.

The rule of free-martins does not hold in the human species. The aunt of the blacksmith at Killintringan was a martin, and bred abundantly. My neighbour R. W. used to tease his sister Jess, by telling her she was a martin, and should never have any family. Jess, however, knowing her own powers, used to laugh at him, and she was in the right; for, since her marriage, she has brought forth sons and daughters in as great number as most mothers in the county where she resides. I am, Sir, your humble servant, W. J.

NOTE.

The above communication is given exactly as it was sent to us, and without responsibility on our part for the curious circumstances therein contained. We requested the address of the author, so as some explanation might be obtained; but, as our desire has not been complied with, no alternative remained, but either to suppress the communication, or present it in its original shape. We have adopted the last measure, and trust that no offence will thereby be given, to the individuals mentioned or alluded to in this ingenious and well executed paper. N.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

Uses of Black Currants displayed.

SIR,

EVERY reader of your Magazine is earnestly requested to attend to what I am about to say, on the uses to which black currants may be applied; and I trust that what is stated in favour of this inestimable berry, will be realized by every person who is pleased to put the annexed recipe in execution.

1*st*, The high price of foreign wine has removed that generous beverage far from the lips of people of moderate fortune, or at least brings it seldom in contact with them; and has obliged us, for I am a person of the above description, to have recourse to other substitutes, whose innoxious qualities are more equivocal, such as shrub punch, whisky punch, toddy, grog, &c.

2*d*, It would be unavailing to complain of the duties and excises which subject us to this privation. These burdens must be borne

borne with patience; and wisdom suggests the necessity of improving as much as possible the substitutes to which we betake ourselves.

3*d*, The object of this essay is to recommend to folks, in similar circumstances with myself, a substitute for foreign wine, not only equal to, but, in my opinion, far superior to it in taste and wholesomeness—black currant wine. I speak from experience, when I say that black currant wine is a healthy beverage; and shall endeavour, in the conclusion of this essay, to present your readers with a good receipt for making it.

4*th*, It would require a volume to expatiate on the numberless qualities of black currants. They are specific in sore throats. A single tea-spoonful of jam made of them, taken in the morning fasting, and a few more through the course of the day, is one of the best internal applications in the gravel; but their greatest property is, their being a fruit so congenial to the climate of Scotland, that a failure in the crop of black-berries is as rare an event here, as of the grape in the island of Madeira. They are as sure a crop as potatoes; and, next to potatoes, the greatest blessing conferred by kind Providence on the inhabitants of a northern climate. When caterpillars are devouring our gooseberry bushes, and leaving not a single leaf on the common currants, the blackberry leaves remain vigorous and uninjured by those destructive vermin, which threaten to baffle the industry and ingenuity of our best gardeners.

5*th*, Yet strange to say, Mr Conductor, the value of this shrub seems hitherto to have escaped our notice. In most gardens, their number is few, compared with that of their companions, gooseberry, raspberry, and currant bushes.

6*th*, I hope what I have said in their favour, will induce your readers to make, by way of experiment, a little of this wine. I am confident they will find it a wine of a *marked* and most admirable flavour, with a certain hardness, which is peculiar to the finest white wines of Spain and Madeira.

7*th*, When convinced there is no exaggeration in these encomiums, I next recommend the increase of the quantity of black currant bushes. I sometimes venture to predict the future state of our Scotch horticultural improvements. On the present occasion, I am tempted to foretell, the blackberry is destined one day to give us little to regret for being deprived of the vine. I hope to see on every farm a portion of it allotted for a black currant garden; and to find our vintage as interesting to our country, as the wine vintage is to our southern neighbours, and far less precarious. It will precede our corn and potato harvest. It will happen at a season when our weather is the finest, between the middle

middle of July and middle of August; whereas, the wine grape vintage all over Europe follows the corn harvest, and verges on winter. The vine requires so much more heat than Germany and France can give it, that a real year, or a full vintage, happens only once in thirty years. In the intermediate twenty-nine years, frost, hail, excessive rains, or long continued droughts, disappoint the hopes, and ruin the fortune of the poor vine farmer. Our blackberry vintage will fail as seldom as the grape vintage succeeds. What a busy and interesting period in every year awaits the Scotch farmer. In our finest season will be seen our blackberry vineyards swarming with women and children, gathering the fruit in a climate not inferior at that season to that of France, Spain, or Italy. Our cellars will be replenished with casks, containing the most wholesome and cheering liquors; while our barley will add to the food of the people, and perhaps supersede our annual importation of foreign corn. I find my mind glow with a degree of enthusiasm, while contemplating the future aggrandizement of our humble blackberry; and recommend its culture to my brother farmers in every quarter of the island. I am yours, &c.

Forfarshire, 1806. DOMESTICUS.

Receipt for Making Black Currant Wine.

To one Scotch pint of juice, put two Scotch pints of water (cold). To every Scotch pint of this liquor, add 1½ lib. sugar (soft). Put it into a cask, reserving a little for filling up. Place the cask in a dry and warm room. The liquor will ferment of itself. Scum off the refuse; fill it up with the reserved liquor. When done working, add a Scotch pint of brandy to twenty Scotch pints of wine. Bung it up close, till February or March following. Draw it off, putting the dregs through a jelly bag till it be clear. The juice will squeeze the better that the berries are first well bruised, and a little cold water added to them. If the liquor for filling up fail, water and sugar may be used in its stead.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Forming and Repairing of Roads.

SIR,

IN some of your late Numbers, the public have been favoured with several valuable papers on the management of turnpike roads. Good roads must be acknowledged to be of great public utility

utility in any country, especially in this, where commerce and agriculture are studiously cultivated; therefore too much attention cannot be bestowed upon them. Road-making has been followed as a profession for many years in this neighbourhood, and various modes or systems have from time to time been adopted; yet, strange to tell! no improvement in the art seems to have been obtained. This may perhaps be owing in part to the ignorance of those who have the management of the public roads, and particularly of the great roads leading to the metropolis; for, though the art of road-making appears to be of a simple nature, and comprehensible by the meanest genius, yet it is not to be supposed that gentlemen of fortune, who generally have the management in these matters, will devote so much of their time to the study thereof, as may be necessary for making them acquainted with its true principles. But be the causes what they may, the fact is unquestionable; for any person in the least acquainted with road-making, who will take the trouble to examine that part of the road which forms the grand entrance into the city of Edinburgh, will easily be satisfied that vast sums of money have there been lavishly squandered away, while at same time the road is rendered more embarrassing and distressing to travellers. Putting more metal on a road at once than serves to support the weight that is to pass over it and keep the surface smooth, is not only an unnecessary waste of money, but the road is made worse for travelling upon. All that seems necessary for making a good road, is to lay it with stones of a considerable size, to the depth of seven or eight inches, and upon these to apply a coating, four or five inches thick, as circumstances may require, of good hard metal, broken so small that none of the pieces exceed an inch in diameter.

After this manner were the roads of this county at first made; and, had as judicious a mode of keeping them in repair been timeously adopted, they would have been in a very different state from what they are at this day. But the great error lay here. After the roads were made, they were generally left to the management of contractors, who were seldom taken bound to do more than keep them surface-smooth. This they easily effected, by levelling any protuberances or notches that appeared, and raking these materials into the hollows or ruts, seldom applying any new metal to supply the daily waste that necessarily took place. Under this management, the roads for some time looked well, and were comfortable to travel upon; but, when the upper coat was nearly exhausted, and heavy carriages begun to sink down among the larger stones at the bottom, they assumed a different appearance, and soon became almost unpassable.

Mankind

Mankind are commonly apt to run from one extreme to another. The ruinous state to which the roads were now reduced by this injudicious mode of management, was imputed, partly to the neglect and avarice of the contractors, and partly to the practice of laying the bottom part with unbroken stones. The system, therefore, was changed; the whole stones were, at a very great expence, broke as small as those that had formerly been used for the upper coat only, and applied, in general cases, to the depth of 14 or 15 inches, the managers never reflecting that, by so great an application of such materials at one time, the road would be more apt to rut and dimple, from the pressure of heavy carriages, than when the bottom was laid with larger stones; which was soon found to be the case. The business of upholding the roads in a proper state of repair, was also taken out of the hands of contractors, and committed to an overseer, who employed labourers by the day under his inspection; but this plan proving as ineffectual as the other, and far more expensive, is now generally laid aside, and contractors are again employed. More attention, however, is paid to the framing and wording of the contracts than was formerly the case, the precise extent of the work to be annually performed being marked out in as plain a manner as possible. The contractor, in most cases, is taken bound to coat, to a limited depth, a certain quantity of the road yearly, so as the whole may be gone over in that way before the expiry of the contract, and in the mean time to uphold every part of it in a surface-smooth state. How this plan will succeed, must be left for time to determine.

As a road, laid with somewhat large stones at bottom, and coated with well broken metal at top, must necessarily cost less in making than when it consists wholly of stones broken small, so it will be found also easier to be upheld in good condition, as the ruts will not go so deep as in the latter case. Indeed, all that is necessary to be done for keeping such a road in a good state of repair, is, when small ruts take place, and the upper coat appears to fail, instantly to supply the defective places, to the depth of two or three inches, with well broken metal; a cart load of which, weighing from 12 to 14 cwt. will cover from seven to eight square yards. The metal should be applied before the dry season sets in, and kept as close together as possible till it consolidate, when it will present a smooth and even surface. It is requisite also, at times, to clear the road from loose stones and mud; but these operations are seldom necessary above twice, or at most three times in a year, and may be performed at small expense, as, in most cases, a girl will rake in the loose stones of half a mile, and a man will collect the mud of one third

third part of a mile, each day. If the road is thus managed, it will afford safety and pleasure to travellers at all seasons of the year, as it cannot possibly get greatly into disrepair without the knowledge of the surveyor, who, by only taking the depth of the coat above the unbroken stones, can at all times, with ease and accuracy, satisfy himself that the undertaker fulfil his contract; and, without his certificate to that purpose, no money ought to be paid by the managers or their cashier. Were the managers themselves to inspect the road occasionally, it would prove a check upon the surveyor, keep him upon the alert, and prevent too good an understanding betwixt him and the contractor. All public works ought certainly to be performed by contract; but, as little scientific knowledge is necessary for making or repairing a road, it is apprehended that *small jobbers* are preferable, for this purpose, to *great contractors*. They can do the work equally well, and on cheaper terms; for an active man, when working by the piece, with three or four labourers employed under him, will execute twice as much work in a day as is generally performed by the same number of people when working to the public at a certain daily rate, and perhaps one third more than would be done by those employed by a *contractor on a great scale*, under the direction of his foreman.

Allow me now to mention a few general rules for road-making, which seem not to be well understood, as they are often overlooked, though they appear to deserve notice.

When a new road is to be made, form it quite flat from side to side, then cut a bed capable of containing half the quantity of metal that is to be applied, and when the materials are put on, box up the sides, and sink the gutterways, by which means the road will be sufficiently rounded. If it is to be wider than the ordinary breadth, it will be better not to sink any of the materials into a bed, but to spread the whole on the surface. Any kind of metal will answer for laying the bottom part; for, if the upper coat, which should consist of the hardest materials that can be obtained, as well broke as possible, is always kept to its proper depth by fresh supplies, the under part can never be injured.

A road should never decline sideways more than one inch in thirty, otherwise it will be more expensive to uphold; for, when a carriage hangs to one side, the wear of the road is greatly increased, not only by the additional weight thrown on that side, but also by the twist which the wheel makes from the oblique position in which it moves. Perfectly level ground is improper for the situation of a road; for, unless the water has a run lengthways, it is impossible to keep the ruts clear. Without a

rise

rise of 18 or 20 inches in every 100 yards, the road will be difficult to keep in repair, and disagreeable to travel upon in wet weather.

Although the hardest stone that can be got is most proper for repairing roads where heavy carriages pass, or the flat parts of any road whatever; yet, in high situations, softer metal is often to be got at much less expense, which, when consolidated, will prove pretty lasty, and make the smoothest of roads. Nay, in such situations, gravel is often found, which, when carefully separated from sand and earth, makes a pleasanter road than what is to be obtained from the application of broken stone.

If any improvement can be gained from these observations, it will, gratify, Sir, yours, &c.

Mid-Lothian, April 19. 1806. AN OLD ROADMAKER.

[As promised in a former Number, a report is now given of a Process before the Sheriff of Haddington, raised by a landed proprietor of that county against one of his tenants, for sowing, or for intending to sow, a greater quantity of wheat than the proprietor judged to be consistent with the rules of good husbandry. The subject being of importance, it was intended to present a correct copy of the different papers in process; but, upon examining and considering them, we found that their insertion at full length would occupy a greater portion of our Magazine than can with propriety be devoted to one subject. On that account, the following statement, chiefly extracted from the decreet of absolvitor, obligingly communicated to us, is submitted to the consideration of our readers.]

Report of a Process which involved the Question, Whether discretionary Management can be exercised by Farmers not tied down by Covenants or Regulations in their Leases.

IN the month of December last, a petition was presented to the Sheriff of Haddington, in name of a landed proprietor of that county, which, *inter alia*, stated that one of his tenants, who possessed under an open lease, or one which contained no clause or clauses relative to management or cropping, intended to sow a greater proportion of the farm with wheat, than the rules of good husbandry would sanction; and, in particular, that the said tenant had about a third part of the farm in wheat last year, having the remainder in oats, turnips, and clover; which fields, namely those under turnips and clover, amounting to one half of the

the farm or thereby, were meant by him to be sown with wheat this season. This mode of cropping, the petitioner considered as extraordinary, and not authorised by the rules of good husbandry, or the practice of the country; therefore, prayed that the Sheriff would fix and ascertain the rotation of crops which ought to be followed by the tenant during the remainder of the tack; and in the mean time, prohibit and discharge him from sowing above one fourth part of the farm in wheat for the ensuing year, &c.

A copy of the petition was, of course, ordered by the Sheriff to be served on the tenant, who was discharged from cropping the farm contrary to the rules of good husbandry and the practice of the country, until the petition should be further advised.

Answers were given in for the tenant, wherein, after expressing surprise that a petition of such a nature should have been offered to the court, seeing that no fewer than seven years of the lease were unexpired, it was maintained, 1. That the lease was formed upon liberal principles, and does not restrict the tenant to any mode of cropping; but, on the contrary, leaves such to be determined by his judgment and discretion. 2. That he, the tenant, was not subjected, by the terms of his lease, even to the customary obligation of adhering to the practice of the country; though, in urging this argument, he by no means intended to convey any idea that he thought himself absolved from following the rules of good husbandry; because, were he to depart from these rules, his own interest would be more materially injured than that of the petitioner. 3. That while he sows wheat upon land well prepared and properly adapted for bearing it, the petitioner has no right to dictate or prescribe what quantity should be sown. 4. That the farm in question, after lying thirty years in grass, was lately broke up, being previously completely limed, and is at present in the highest order and condition. 5. That sowing wheat after grass is not a new and unprecedented mode of cropping; but that such management is followed by the most intelligent and respectable farmers of the country. 6. That where the ground is in such high order as the respondent's farm confessedly is, it can never be injured by the mode of cropping complained of; it being now almost universally admitted, that a white and green crop alternately (the mode followed by the respondent) is far more beneficial, than taking two white crops successively, as was the custom of former times. 7. That the quantity of wheat, which he will be justified in sowing during his lease, must, in a great measure, depend upon seasons and other circumstances, and cannot, in the most distant degree, be ascertained

ascertained by abstract arguments. 8. That a lease free from restrictions had hitherto been looked upon as more beneficial than one which fettered the tenant's practice; though, were the doctrines laid down by the petitioner correct, the tenant, originally unfettered, would be in a worse state than the one who had voluntarily come under obligations. In short, it was contended, that were a proprietor entitled to insist in such claims for the period of seven years, he might, by analogy, claim a right of interference for a much longer period; nay, even for the whole endurance of a lease, thereby limiting and restraining the operations of the tenant, and producing incalculable loss in the improvement of the country. For these reasons, the dismissal of the petition was prayed, and expences insisted upon.

Elaborate replies were given in to these answers. The main part of the replies may be classed under three heads. 1. That the taciturnity of the lease respecting management should have the direct contrary effect from what was contended by the respondent; for, as the lease is silent, it appears that there is an absolute necessity for that defect being supplied by the judgment of Court. 2. That though the petitioner readily admits that the respondent's farm is at present in a good state of cultivation, yet he maintains, that if it is cropped in the manner avowed by the respondent for the now seven last years of the lease, it will be reduced to such a wretched state of poverty and foulness, as to be of very little use either to the landlord or incoming tenant for many years afterwards. 3. That though a few speculative farmers have been induced, from the late uncommon prices of wheat, to try, for some years past, the mode of cropping contended for by the respondent; yet this new mode was directly contrary to, and in the face of, the rules of cropping established and practised by the great body of intelligent and respectable farmers in the county. After insisting on these points with much energy, it was stated that, the ideas of parties being so widely different concerning the rules of good husbandry, &c. a proof might either be allowed of their several allegations and averments, or visitors appointed to inspect the farm, and report on the mode of cropping, which, in their opinion, the respondent ought to be bound to follow out during the remainder of the lease.

The Sheriff, on the 30th January, having considered the petition, answers, and replies, remitted to two gentlemen of landed property, and three farmers, 'to consider the papers in process, and to inspect the farm possessed by the respondent; and to report how far the mode of cropping and management, stated in the petition, and not explicitly denied by the tenant, will have the effect, if followed during the remainder of the lease, to im-

poverish and deteriorate the farm at the expiry thereof, or is otherwise inconsistent with good husbandry.'

The visitors met and inspected the farm, along with the parties and their procurators, on 17th February. Before they proceeded to business, the following declaration was delivered to them by the respondent.

'The respondent requests liberty to declare to the visitors appointed to inspect his farm, that, notwithstanding the lease, under which he possesses, is altogether silent with regard to the mode of management to be exercised thereon, yet that it was at *no time his intention to labour or crop the farm in any way or manner inconsistent with the rules of good husbandry*; and more particularly, he declares that, notwithstanding it is his intention to sow a considerable quantity of wheat this season, because the fields on which it is meant to be sown are in good and sufficient order for carrying a crop of that grain, and also, in the remaining years of the lease, to sow such quantities of wheat as the farm might be supposed capable of carrying; yet *that it was at no time his intention of sowing wheat upon land, not duly prepared for carrying a crop of that grain, or which was in a foul state.* In short, that his intentions with regard to wheat were, and are, restricted entirely to raising that grain, when *circumstances of soil, season, culture and condition enabled him so to do, with a reasonable prospect of success.*'

The report unanimously made by the visitors to the Sheriff was as follows.

'We visitors appointed by the Sheriff on the farm of according to act and remit, pronounced by him on the 30th January last, and 13th instant, having met in a body upon the said farm, along with the parties themselves, inspected the several fields thereof, considered the petition, and other papers connected therewith, and heard the petitioner and respondent relative to the way in which the said farm is and ought to be managed, do hereby report—

'*Primo*, That the farm of is at present in excellent order and condition.

'*Secundo*, That the different fields intended for wheat this season, are well calculated for carrying a crop of that grain.

'*Tertio*, That the mode of farming practised by the respondent, is neither inconsistent with the rules of good husbandry, nor contrary to the practice of this county, as established for a considerable number of years, and will in no shape waste or deteriorate the farm.' This report was verified before the Sheriff.

In consequence of this decisive report, the Sheriff assoilzied the tenant, and found the petitioner liable in expences.

Against

Against this interlocutor, a reclaiming petition was presented. After disclaiming every intention of perplexing or distressing his tenant, the petitioner urged that his sole object in making an application to Court originated from motives of fairness to both parties, and to ascertain whether the respondent had a right to crop his farm in the novel manner he was doing; which mode of cropping he considered to be hurtful in its consequences, therefore deserving of investigation. After noticing the report of the visitors, and passing over the first head thereof, as not needing any comment, it was argued, on the second head, that the quantity of ground intended for wheat this season was not specified, as ought to have been done; and on the third it was observed, that the mode of farming practised by the respondent, namely, sowing wheat after turnips, and wheat after clover, may perhaps *not* be inconsistent with the rules of good husbandry, or contrary to the practice of the country; yet the plan of having *always* one half of the farm in wheat, it is apprehended, is no where the established practice of this or any other county, upon farms so situated as the one possessed by the respondent. Under the presumption, therefore, that the visitors had not exhausted the remit made to them, it was urged that they should be interrogated on certain points; and that it should be remitted to them, to consider and report whether the respondent's mode of culture, by having one half of his farm in wheat for the remaining years of his lease, without the aid of adventitious manure, will not be injurious to the farm. Several other matters were touched upon, though unconnected with the original remit, namely, whether the respondent should be permitted to sell hay from the premises, unless he purchased an adequate quantity of dung in its place; and also respecting the quantity of fallow and grass he ought to leave at his departure from the farm. These points being settled, it was alleged, would prevent after litigation; whereas, if the Sheriff did not interfere, endless questions might afterwards arise betwixt the parties.

The reclaiming petition was ordered to be seen and answered; and, in obedience to that appointment, answers of the following nature were forthwith presented. After stating that the petition contained little or no new matter, the same ground being travelled over that was originally occupied, it was shewn that the report of the visitors embraced every article of the remit; and that when the petitioner asks for a second examination of the visitors, he assigns no better reason, than that they had neglected to report upon matters not included in the remit made to them. To save the trouble of abridging, a few paragraphs of the answers shall be given *verbatim*.

'On examination of the report, it will be found that it fully establishes these conclusions, namely, that the respondent's farm is in good condition; that the fields intended for wheat this season, are well calculated for carrying a crop of that grain; and that the management exercised upon the farm, is consistent with the rules of good husbandry, and will not waste or deteriorate the same. Such being the report of visitors, whose experience and abilities stand so very high in agricultural affairs, little need to be urged in support of their report, especially as the objections offered against it seem so trifling and insignificant. The petitioner very wisely declines making any comment upon that part of the report regarding the present condition of the farm. The respondent, however, considers this branch of the report to be of vast importance, in as much as it shews that his mode of management, in place of having the effect to waste and deteriorate the farm, as alleged, has brought it into the highest state of cultivation. The objection to the second branch of the report is, that the quantity of ground, intended to be sown this season with wheat, is not specified. With submission, however, it is maintained, that, under the circumstances of the case, the visitors were under no necessity of making such a specification. They had already, in the first article of the report, declared the whole farm to be in excellent condition; and, in the second article, stated that the several fields intended to be sown with wheat were well calculated for carrying a crop of that grain. Now, there is not an agriculturist, even of the most superficial talents, who will take upon him to say that it is contrary to the rules of good husbandry to sow land with wheat, which, in condition and circumstances, answers the above description. The visitors, therefore, as might have been expected from persons of their knowledge and experience, viewed it as immaterial whether the breadth of ground in question was twenty acres or forty. It was sufficient to them, and so will it be to every unprejudiced man, that the whole was naturally or artificially qualified for carrying wheat in perfection; and it is surely sufficient for a landlord to know not only that his farm is in excellent order and condition, but that the different fields intended by the tenant for wheat, are well calculated to bear a crop of that grain. If he wishes for more, one is apt to imagine it can only be "with a view to perplex or distress his tenant." The objection to the third branch of the report, is of a more general nature; and, were the respondent to attempt a refutation of every thing therein included, a treatise on husbandry, instead of answers in an ordinary shape and size, might be offered to the court. From the manner in which this objection is stated, it

it is most obvious that the petitioner has *abandoned* the plea with which he set out. It is stated in *this* petition, that it is against the having so large a part as one half of the farm always in wheat that the petitioner objects, and not against sowing wheat either after turnips or clover; whereas, in the *original* complaint, the petitioner complains of the respondent's mode of management in sowing, or attempting to sow, wheat after grass or turnips, which he there denominates, first, *an extraordinary mode of cropping*, and, afterwards, a new and *unprecedented mode*; and, in his replies, he averred, that this *new mode of cropping* would have the effect to reduce the farm to a wretched state of poverty and foulness. Finding, however, that the visitors are unanimous in reporting, in direct contradiction to what the petitioner had asserted as the practice of the county, the rules of good husbandry, and the effects of that mode of management which he stigmatized and cried down in his petition and replies, " that the mode of farming practised by the respondent, is neither inconsistent with the rules of good husbandry, nor contrary to the practice of this county, as established for a considerable number of years, and will in no shape waste or deteriorate the farm; " and, no doubt, despairing of success in attacking this strong and comprehensive part of the report, the petitioner changes his ground, and pretends it is not against sowing wheat either after turnips or clover that he objects, although this was the prominent feature in his original complaint, but against having too large a proportion of the farm in wheat. In answering this new ground of complaint, it is material to be kept in view, that the respondent is under no restriction by the lease as to the quantity of wheat to be sown upon the farm; and it cannot be improper, in this place, to state what was slightly noticed in the respondent's original answers, and not denied by the petitioner, namely, that the respondent and his deceased father were at much trouble and expense in bringing in and improving this very farm. It was almost wholly kept in grass for the long period of thirty years, during which time large quantities of dung were purchased at Dunbar and laid on the premises. It has also been completely limed at a great charge, and rendered capable of carrying weightier crops than almost any farm in the neighbourhood. Now, does the petitioner act in direct consistence with the acknowledged principles of justice and equity, in making attempts to restrict the respondent from reaping the fruits of his well earned labours, more especially when five gentlemen of character and reputation have certified that he is using no improper means to reap those fruits? The petitioner will not for a moment indulge the thought, that the Sheriff, or any judge

whatever, who is appointed to administer the wise and salutary laws of this country, will countenance such an attack upon private property; for, was the petitioner successful in his claims, the main spur to improvement would be taken away, and no security left to individuals who had made, or intended to make, extraordinary meliorations. When, therefore, the lease is silent, and the respondent under no restrictions as to the quantity of wheat to be sown, and the visitors so explicit in their report, that his mode of management *will in no shape waste or deteriorate the farm*, the respondent can have no doubt the Sheriff will not think himself called upon to interfere *hoc statu*, so as to lay the respondent under any restrictions in his future mode of management, or impose upon him any particular rotation of crops, unauthorised by the terms of the lease. By the way, it may be remarked, that the respondent has no where avowed it as his intention, notwithstanding it is so insinuated in this petition, to sow the one half of his farm every year with wheat;—on the contrary, in his answers, it is expressly said, that the quantity of wheat to be sown, must in a great measure depend upon the season, and other circumstances: and though the respondent does not apprehend that any injury would be done to the farm were he to take a crop of wheat every succeeding year, so long as the ground is kept in good condition; and thus, he submits, the visitors have expressly, at least in effect, said, under the last head of the report; yet he begs leave to assure the Sheriff, that he has fixed upon no precise plan of cropping his farm, but leaves that to be determined by seasons and other circumstances. He may, however, state here, that it is his intention to preserve the farm in good order, and to manage it according to the rules of modern husbandry. The culture of wheat, on a large scale, is by no means contrary to these rules; though the petitioner would almost make the Sheriff believe that there is something in that grain which poisons the soil, and extinguishes its powers. The respondent, however, avers, that the best cultivated farms in the county, are those where the greatest quantity of wheat is raised; and that to extend and increase this quantity, is the object of every good farmer. Wheat is not a scourger of the ground, if sufficient pains are bestowed in the preparation process. If it takes more from the soil, which, however, is a questionable point, it also returns a vast deal of more manure, for the benefit of the soil in succeeding seasons, by the great quantities of straw produced from that grain more than any other kind. The respondent's mode of management, therefore, has a direct tendency of improving the farm, by the great quantities of dung he has been able to produce

and

and lay upon it; and that system, which the petitioner sets himself so vigorously to oppose, is the only one which will do justice to both parties, and is practised by the most intelligent and skilful farmers in the county. The interest of the landlord and tenant, it will always be found, go hand in hand; and the Sheriff will never believe that the respondent, whom the petitioner acknowledges to be an active and enterprizing farmer, and who has yet seven years of his lease to run, would adopt and persevere in a plan of management, that would have the effect of ruining, or even materially injuring, the farm. But, without arguing further upon these topics, (because, after the report of the visitors, declaring unanimously, upon their oaths, that the mode of farming practised by the respondent, *will in no shape waste or deteriorate the farm*), argument upon them is superfluous.

'It now only remains, that the respondent advert a little to some new claims of the petitioner, brought forward in the reclaiming petition, about selling hay during the currency, and leaving land for fallow, &c. at the expiry of the lease. These points were not included in the original complaint, consequently formed no part of the remit to the visitors, and are not *sub judice*. To prevent a farmer from selling hay, must be viewed as a very uncommon circumstance in Scotland, particularly in this county; but to request the interference of a court of justice to impose such a restriction, during an existing lease, which contains no such prohibition, is a novelty that the respondent imagined would never have entered into the mind of any landlord to demand. Again, as to leaving fallow land the last year of the lease for the benefit of his successor, the respondent maintains, that no power on earth can, according to a single maxim of justice, impose such an obligation upon him, seeing that there is not a word concerning such a thing in the tenure by which he holds his possession. The petitioner has just as good a right to the *whole* farm in the last year, as he has to a *part* of it. Nay, he might with equal propriety come into court, and request the Sheriff to fix and determine what additional sums should annually be paid to him, by way of rent, during the currency of the lease. Hints are thrown out, as if the future management of the farm might give rise to endless questions; but the respondent knows too well that he stands on solid ground, to be alarmed by any thing of that sort. The petitioner may give the respondent some trouble, but it is presumed he will not thereby benefit himself.—Upon the whole, when the Sheriff considers the high state of cultivation of the respondent's farm, and that his mode of management has been reported to be consistent with the rules of good husbandry, as well as the practice of this county, and will in no shape waste or deteriorate the

farm; and that the respondent has no where avowed it as his intention to have the one half of his farm always in wheat, but explained himself as to his future conduct in manner foresaid; and that the report of the visitors is already sufficiently accurate, comprehending every thing in the remit; it is hoped the Sheriff can have no difficulty to refuse the petition, and adhere to the interlocutor reclaimed against.'

The Sheriff, after considering the petition, and answers, adhered to his former interlocutor; by which, two points may be considered as established, so far as his authority goes. 1. That where a lease is silent respecting cropping and management, judicial interference cannot be gained in support of a proprietor's claims, so long as the tenant keeps his land in good order and condition. 2. That the sowing of wheat, even though it should extend over one half of a farm, is not contrary to the rules of good husbandry, providing a suitable rotation is practised by the tenant. Discretionary management, where a tenant has not renounced it, we should view as the right of every free-born agriculturist, it being always understood that this discretion is to be exercised in such a way as not to injure the property of another person.

N.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On Highland Husbandry.—Reply to the Letter of Senex, p. 316.

Sir,

If every writer were to adopt the resolution of David Hume, never to reply to any person who should attack his sentiments, it would not only tend to preserve the peace of society, but prevent the effusion of much nonsense. As few authors, however, possess the phlegm of that celebrated philosopher, and as there exists no statute for keeping the peace, the ordinary individual who would follow his example, would run great risk of being denounced as a literary coward, or declared to be a conquered enemy. Though not partial to controversy, I beg your permission to reply a few words to a gentleman who honoured me, in common with others, with his notice in your last Number. I know not how my colleague, who obtained the other half of Sir George S. Mackenzie's premium, may feel, and whether he may be ready to recant his errors; but, for my part, I hold my sentiments unchanged, and think I owe some defence not only to myself,

myself, but to the worthy Baronet with whom the subject originated.

I must take the liberty to declare, that I do not feel the same martial spirit with my antagonist. I intend by no means to spend either the last drop of my ink, or the last bit of my paper, in the Highland controversy, but to reserve a little of both for purposes equally important. I am happy, however, that Senex does not threaten to spend the last drop of his blood, else, as authors and critics are now adopting the fashionable method of settling their accounts, I should certainly have kept quietly behind the scene, and left him a clear stage. When I reperused your old friend's letter, and saw him, like Marius on the ruins of Carthage, sitting and lamenting his old age on the fallen fragments of feudalism and clanship, I was tempted to let him alone, and leave your readers to form their own opinions of a writer who deplores the destruction of such a system. Your correspondent, however, is not an opponent to be despised; he writes in a manner which must conciliate the esteem of good men; and therefore his sentiments may obtain an influence over the understanding, to which they are not entitled. I must declare my unfeigned esteem for his benevolence, and if I should use a single expression which may savour of levity or harshness, I beg him to believe, that nothing is farther from my mind than to give him offence.

Senex is not quite correct, when he says, that your correspondents, in recommending the introduction of cultivators from other districts, maintain the resident inhabitants of the Highlands to be incapable of improving their country. I, for one, do not maintain, and I know not who does, that the native Highlanders can never be capable of improving their country. The question, in reality, is, whether that country can be improved to *greatest advantage* by the natives, or by strangers, that is, most profitably for the proprietors and for the public? This question resolves itself into another, by which of these methods may it be expected to be soonest brought into its highest state of production? This is really the point at issue; for, though it could be shewn that in one hundred years, or even in fifty, the plans would be equally effectual; yet, if one of them could do the same thing in thirty years, it would deserve the preference. Senex can have no objection to this state of the question, so far as I am able to perceive; and I am satisfied, Sir, that you, and the bulk of your intelligent readers will have none. Whether is it by the native inhabitants, then, or by strangers, that we may expect the Highlands to be most speedily improved? Senex must, of coure, say, by the natives; I say, by strangers.

No country can advance far in agricultural improvement, till the

the cultivators of it possess, in the first place, skill; and, in the second place, capital. This, I think, can hardly be disputed.

Agricultural knowledge will be found to travel more slowly, perhaps, than that which is connected with almost any other art or science. In farming, nothing can be established but by experiment; and experiments, in that department, are necessarily tedious. That which cannot be tried above once a year, and probably not so often, must labour under great disadvantages. Such, however, are the greater part of the schemes, which have for their object the improvement of the soil. An agriculturist cannot, like a chemist, bring every new idea immediately to the test, and pursue his trials from day to day, till he have either established or refuted it. Add to this, among men of this class, where little knowledge is possessed, each individual founds his practice almost entirely on his own experience. Men have begun to be considerably enlightened, before they look anxiously around them for information, and endeavour to profit by the experience of others. Highland cultivators are greatly misrepresented, if they have generally arrived at that state; and, if they have not, things must follow a very uncommon course among them indeed, if they soon acquire much agricultural knowledge, unless it be imported. Are we to expect, judging by past experience, that these people, destitute, as the greater part of them are, of general knowledge, and far removed from the means of acquiring the knowledge of their profession, will all at once become expert and skilful? Some generations must pass away before agriculture can be well understood among them.

If this be the case, the reader cannot refuse the conclusion which I wish to establish; he must admit that these people could never improve their country so soon, other circumstances being equal, as persons who possess a high degree of agricultural knowledge and experience. Place an East-Lothian or Berwickshire farmer in the Highlands, with all the ignorance of soil and climate which Senex can ascribe to him, and say if he will take as long time to discover the best method of making his land productive as those who never knew any thing of improved husbandry, till they saw him introduce it in their neighbourhood? The matter, I think, admits of no question, whether those who possess the knowledge of their business, or those who have that knowledge to acquire, will soonest arrive at excellence.

Capital is as necessary as skill; for, with all the knowledge in the world, a man can do nothing without money. A person who is in want of this necessary article, may create it by great industry and care, but it will be slowly; he must, however, have it, before he be an improving farmer. Before any person can adopt

dopt new plans, and render ground productive, which was formerly barren, he must have more capital than was necessary for his ordinary operations. When a country has been improved to a certain extent, there must be an excess of capital above the current demand, before it can proceed much further. I would be glad to know if Highland cultivators possess this excess; if they do, the dispute is at an end; if they do not, I maintain that, did they possess the whole encyclopædia of agricultural science, it would be unavailing.

Skill and capital must both be possessed, before much improvement can be effected; if these already existed in the Highlands, proprietors would not be inquiring after tenants to improve their estates; if they do not exist, I leave it to any man, whose understanding is not strangely warped by prejudice, to decide whether the native inhabitants or strangers, bringing with them the requisite talents and property, are like to get foremost in the career of improving. No one will question whether the districts referred to can ever be improved without the introduction of strangers; the Highlanders are naturally capable, like other men, of acquiring both money and knowledge; but they must be singular characters indeed, if they can accomplish as much without either, as other men can with both. Senex complains, that we degrade and undervalue the poor Highlanders; we, in fact, only suppose, that they cannot render themselves superior to those circumstances which controul the whole species,—that they cannot act without means.

The tenants of the Highlands, I believe it will be generally admitted, are rather poor, and the farms small; two circumstances which are almost always connected. Are these the people by whom the country is to be improved? I appeal to fact, whether any part of our country has been considerably improved by such occupiers. I appeal to reason and common sense, whether such a thing is to be expected. On a small piece of land, it is impossible to enter into any important scheme of melioration; and, besides, the person who occupies such a spot, if he farm for a subsistence, cannot afford to make the trial. Little more can be reasonably expected of him, than that he shall not make his land worse; if, in the course of an ordinary lease, he make it a few shillings better per acre, he does well. Farms must be rather large than small, before any general and valuable improvements can be introduced; but you must make farmers rich before you enlarge their farms, else you will do more harm than good. A large farm to a poor man, would assuredly be a great evil.

Look at any district where agriculture is rapidly advancing; and if increasing wealth, increasing farms, and increasing improvements

provements, go not on in nearly the same ratio, I shall be willing to concede the whole subject in dispute. Senex will probably object as much to the enlarging of farms, as to the introduction of farmers from other districts, since it must as necessarily send a number of the present occupiers to seek other employment. * I am warranted, however, to consider him as admitting the propriety of large farms, because that is one of the encouragements which I have required for South country farmers, and he says that he asks no more for the natives, than what we have demanded for strangers. But a large farm would be lost in the hands of a man, such as the greater part of Highland farmers are, who possesses no capital, and knows little or nothing of modern husbandry.

I have said enough, I trust, perhaps more than enough, to establish all that I am bound to maintain against Senex; but it might be deemed disrespectful not to notice more particularly what he has advanced. I beg your indulgence then a little further, till I consider shortly his arguments.

'Every part of Britain, he says, with which we are acquainted, has been brought into a state of cultivation by its actual possessors, without importing either capital or knowledge from other places.' Now, admitting this to be an established fact, which I do not by any means, it only proves what has been cheerfully granted, that the Highlands may be improved, at some period, without the aid of strangers. But when may this period be expected to arrive? Let my opponent answer. 'It requires, however, a long period of time to bring any country into a state which, with the least semblance of truth, may be characterized as perfectly improved. Several generations may pass away, without any thing like perfection being attained. Even the boasted county of East-Lothian, which, to be sure, now appears to be kept in something like garden culture, did not reach that condition in less than six or seven centuries.' What conclusion are we to draw from this? Certainly, that the Highlands cannot be expected, according to the ordinary progress of things, to reach a perfect state of culture, in less than six or seven centuries. But does it follow, that it could not reach this state much sooner, were talents and capital imported from more improved districts? To establish this conclusion, Senex should have shewn, that attempts were made to perfect the husbandry of East-Lothian much earlier,

* I say this, not as granting that an improved system of husbandry tends to lessen the population, but because Senex will not allow any of his old farmers to become hewers of wood and drawers of water to their successors.

earlier, by colonies of rich and expert husbandmen from other quarters. The slow progress of agricultural improvement, in the *ordinary* way, is in reality a reason for trying to quicken it by *extraordinary* means. Were it possible to colonize the Highlands by rich and skilful farmers,—from East-Lothian, for example,—can we believe that the new race would take six or seven centuries to bring the country into any thing like a perfect state? We can suppose so, only by supposing, at the same time, that they should leave their talents, knowledge and understanding, behind them.

'As no country,' says Senex, 'can be brought at once into a state which, in the most distant degree, resembles any thing like perfect improvement, every thing which carries in its face an idea of perfection being attainable in the first instance, must be viewed as preposterous and absurd.' Now, what is the reason that any country cannot be brought, I do not say instantaneously, into a state of improvement, as Aladdin could, by the help of his genii, build a palace; but rapidly, so as to attain in a few years what Senex says must be the work of centuries? Is it owing to any latent principle of indocility in the soil, which must be schooled a long time before it will learn to put forth its powers? All the instruction which the earth requires, is complete cleaning and plenty of manure; bestow that, and it will not require a long course of years to proceed from barrenness to fertility. The whole mystery which seems to puzzle Senex so much, and which he has employed such a beautiful figure to illustrate, is accounted for by the slowness of men to acquire knowledge and capital. That is the sole reason why agricultural improvements have, generally, travelled with so tardy a pace; but that reason does not apply, where both knowledge and capital have been previously acquired. If a farmer brings a piece of ground, which has been in a wretched state, into good condition in a few years, a thing which we see every day, what is the difference whether that be in the next parish from his former residence, or in the next county, or in the Highlands? The knowledge of soil and climate, which seems to bulk so mightily in the imagination of your correspondent, may be acquired in a few years, as well as in a century.

'If we shall suppose,' says your correspondent, 'that the native Highlanders at this time are not further advanced in improvement than the inhabitants of the Lowland districts were a century ago, still it does not afford any reason to believe that their efforts to improve, all circumstances considered, would not be equally successful, were they favoured with the like assistance and protection as has been conferred upon their southern neighbours.'

bours.' Now, when we admit all that upon which Senex here founds his conclusion, it proves nothing more than was granted without dispute, that the native Highlanders are naturally capable of improving their country in time; but it leaves the question undetermined, whether they can improve it as soon, or nearly as soon, as those who have the means of which they are destitute. This is the point at issue; and, as I have already discussed it, I shall not say another word upon the subject.

With regard to the laziness which, Senex says, is ascribed to the Highlanders, I consider it, as far as it is the case, to be the consequence of their unfavourable circumstances, and to make them rather objects of pity than of blame.

The last argument of your correspondent, and that which perhaps he regards as his strong hold, is drawn from the loss which it is supposed the country would sustain by the introduction of a foreign race, and the consequent emigration of the natives. Now, in recommending the introduction of farmers from the south, for the purpose of improving the Highlands, it is not to be imagined that all the native inhabitants would be expelled, and their place supplied by strangers. Such a general change is utterly incredible; and, therefore, the terrific idea of general emigration is absurd. A change of this kind could neither be universal nor sudden, and consequently the population would never be sensibly affected by it. But I am not afraid to maintain the principle which I have laid down, and let Senex push it as far as he pleases. Supposing the revolution to become general, it would require stronger arguments than I have seen, to prove that the interest of the country forbids it, provided the interest of agriculture require it.

The interests of a nation are not to be measured by the interests of a particular district, or of a part of its inhabitants only. All the inhabitants of the Highlands are little, compared with the inhabitants of Great Britain; its farmers are still less; and whether it be better to take measures for providing food to the whole, or to gratify a few by keeping them in the situation which they desire, a very limited understanding may be able to decide. The interest of small farmers in general, or rather their inclination, can scarcely find an advocate now, from one end of the island to the other;—so satisfied are all persons of sense that the improvement of the soil, consequently the good of the country, requires farms to be large. No injury to the public, no act of injustice or inhumanity, is complained of, in the low country, when small farmers are daily driven from the employment to which they have been bred; yet if it be proposed to do, what is in principle the same, with regard to the Highlands, the hue and cry is instantly raised,

raised, and every thing bad is ascribed to the proposers. Sir George Mackenzie has stated the true reason of all this idle declamation.—How shall we supply our armies, if these people succeed in their plans of Highland improvement? And are we to want bread, that we may be supplied with soldiers? Are Highland proprietors to condemn their estates to everlasting barrenness that they may yield a greater number of recruits,—and all this for the public good?

My worthy opponent seems to be entirely misled by that fallacious and partial philanthropy, which fixes its regard on a particular object, and discerns not the thousands which equally solicit and deserve attention. He is like a general, who would sacrifice the remnant of his army, rather than abandon a few wounded soldiers on the field of battle. If, indeed, he choose to make the whole a question of expediency, and be willing to sacrifice the agricultural improvement of the Highlands for the sake of the present inhabitants, or rather a part of them, let him say so: we shall then know precisely the subject of dispute. But, if he choose this ground, I entreat him to say who shall indemnify Highland proprietors for the loss which they must sustain, or upon what principle they can be called to make so great a sacrifice as to neglect the means of improving their property like other people? Let him say, whether it is better to want food for our population, or to part with some of our people, in the first instance, in order to provide more fully for the rest? And let him say, if he thinks that we are in danger of not having people enow, provided we can find food for them. These are topics which deserve attention; and, if they are to be discussed, let it not be by vague declamation, and by describing emigration scenes, the tendency of which can only be to excite indignation in those who are affected by the subject, and a fallacious feeling of sympathy in others, when they should be guided by the sober dictates of the understanding. If I too, Sir, like Senex, might presume to give you my advice, it would be, never to depart from that liberal spirit, and those just maxims of economy, which have raised your work so high; but I believe the advice to be unnecessary. Your most obedient servant, J.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Reply to the Heritor's Account of the Proceedings in the Case of Culsamond.

Sir,

In your valuable Magazine of May last, is an '*Abstract of Judicial Proceedings in the Case of Mr Ellis at Culsamond, against his*

his Heritors for repairs,' which is calculated to mislead both heritors and ministers in judging of their respective rights. It is there asserted, that 'to the addition of the manse, the heritors agreed; but objected to the hen-house, to the garden-wall of stone and lime, and to more accommodation of offices than one barn, and a stable and byre sufficient for holding ten black cattle and horses.' This is partly true, and partly not. After a long and expensive litigation, the heritors proposed to build *an* addition to the manse, but not *the* addition decerned by the Presbytery, as there stated: for the addition proposed by the heritors was only 14 feet by 16 within walls; whereas that decerned by the Presbytery, and afterwards approved by the Court of Session, was 2 feet longer. And although the heritors 'objected to more accommodation of offices than one barn, and a stable and byre sufficient for holding ten black cattle and horses;' yet it ought to have been added, that their objection was not sustained by the Court of Session, who affirmed that part of the Presbytery's decree, which allowed the minister a stable and byre sufficient for holding 14 horses and black cattle, a cart-shade, a grain-loft, shelves for his milk-house, and a variety of useful and necessary repairs which the heritors had refused.

As the *abstract* is so erroneous and imperfect, the following is presented to your readers as a full and correct state of the minister of Culsamond's accommodations, which were approved by the Inner-House.

1st, A *Manse*, containing eight fire-rooms, of which six are 16 feet square, and two 18 feet by 14; also a kitchen 16 feet 8 inches by 13 feet 4 inches; a cellar, 7 feet 10 inches by 6 feet 3 inches; a milk-house, 9 feet 8 inches by 7 feet 10 inches; and a victual-house 12 feet square, all within walls; beside two smaller apartments, and 4 wall-presses.

2dly, *Offices;* viz. a barn 42½ feet by 12, with a grain loft 18½ feet by 12, in the one end; a stable and byre 42½ feet by 12, with a cart-shade 12 feet square, all within walls; all the premises were appointed to be slated.

3dly, A garden-dike built of dry stone, 5 feet 3 inches high, with a coping, and 200 yards in length; this being found necessary to enclose the remainder of half an acre, after taking off the stance of the manse and offices.

This accommodation, the *Heritor*, who signs the *abstract*, considers as *legal*,—not surely because defined by statute, (for no such statute exists),—but because sanctioned by a late decision of the Court of Session, which, like every other decision of that Court, is highly entitled to the respect and imitation of Presbyteries. It

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is not, however, by this decision alone, that the proceedings of Presbyteries ought to be regulated, but by all recent decisions of the Superior Court in similar cases. Nor are all these decisions together to be considered as furnishing a *perpetual* model of a minister's accommodations, which, as hitherto, must no doubt continue to vary with the fashion and circumstances of the times.

The *Heritor* complains of 'the power which Presbyteries have in the first instance, where they are not only a party, but also judge and jury,' as 'a power inconsistent with the principles of our civil rights.' It is, I own, an anomaly in our civil code, but rendered so perfectly harmless, in consequence of the appellate jurisdiction vested in the Superior Court, that a minister very rarely, if ever, ventures to claim, or a Presbytery to decern, any thing which is not authorised by custom, or by some prior decision. Indeed ministers, instead of claiming more accommodation than is absolutely necessary, usually complete it, by laying out a greater sum than their moderate incomes can afford, rather than provoke an appeal against a decree of Presbytery; equally aware of the animosity engendered by litigation, and that the slightest alteration of the Presbytery's decree would subject them to the expense of process. And, while Presbyteries participate in these feelings of individuals of their own order, they know that, without the strictest impartiality in their proceedings, they can neither obtain the approbation of the public, nor of that court of which they act as a committee. When the Presbytery of Garioch decerned a garden dike of stone and lime, of five feet three inches high, with a coping, for the minister of Culsamond, they acted in conformity to a late judgment of the Court of Session, in the case of the minister of Muckart, though, it seems, there was some specialty in the latter case, to them unknown; and they did so with the greater assurance, because the workmen, called by the Presbytery and heritors, gave it as their opinion, that such a dike 'would be most for the advantage of the heritors.' They decerned a kiln-barn, as well as a thrashing-barn; because this was part of the minister's accommodation then existing; because the kiln-barn was judged too small, and in other respects inconvenient for a thrashing-barn; because a kiln-barn, as well as a thrashing-barn, is part of other ministers' accommodations in the neighbourhood; and because, in Aberdeenshire, meal-mills have not adjoining kilns for the public accommodation, as in most other counties of Scotland: a circumstance which, had it been sufficiently known to the Court of Session, would, in all probability, have induced their Lordships to 'find the heritors liable

in the repairs of the kiln,' as they did, on the 18th February 1806, in the case of the minister of Botriphny, the repairs of whose kiln, as well as of that of the minister of Culsamond, they had refused on the 3d of July 1805. A hen-house, which the Presbytery had decerned, was likewise refused by their Lordships,—not, probably, because they judged it unnecessary, but rather on account of the expense stated in the workmens' estimate; for as, a few days after, they allowed a hen-house to the minister of Botriphny, it may fairly be presumed that they would have allowed the minister of Culsamond a similar one, had he thought it worth while to reclaim. Had 'an opinion gone abroad,' as the *heritor* suspects, 'that the higher courts are partial to the clergy,' it would have been very 'ill-founded and reprehensible,' and, it may be added, grievously adverse to the interests of agents and barristers employed in conducting lawsuits. But are the heritors of Scotland so weak or so wicked (as the *suspicion* of this heritor implies) as to have withdrawn their confidence from our courts of justice? No. Without hesitation, it may be affirmed, that no suspicion of the integrity of the higher courts exists, either among heritors or others, who, living under the best political constitution devised by human wisdom, are equally satisfied with the laws themselves, and the impartiality with which they are administered.

Let the heritors of Scotland, Sir, have due praise. Most of them are just enough to give ministers every necessary accommodation, without reducing them to the painful necessity of using legal measures to obtain it: nay, many of them are so liberal to ministers, as to grant them more accommodation than they could justly claim. Without pretending to estimate 'the merit of the heritors of Culsamond in their process,' it may be proper to state, that the alterations and repairs originally claimed by the minister, and decerned by the Presbytery, were estimated at 94*l.* 18*s.* 8*d.*, and that the expense of repairs and additions ultimately appointed by the Court of Session, amounted to about triple that sum, beside the expense of process, which (including 51*l.* 5*s.* 1½*d.*, the expence of extract) amounted, it is believed, to 200*l.* more. How far this affords encouragement to resist the moderate claims of a minister, and the equally moderate decrees of a Presbytery, is humbly submitted to the consideration of your readers. Heritors, beware! Whoever recommends to you the example of the heritors of Culsamond, is like the fox in the fable *who had lost his tail.* I am, Sir, &c. A KIRK-OFFICER.

TO

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Cursory Remarks on Baron Hepburn's Outline View of the Corn Laws.

SIR,

IN the sixth volume, p. 150. of your Magazine, '*an Outline View of the Corn Laws, with their Causes and Effects,*' is given by the Honourable Baron Hepburn. My sentiments on the corn trade, and the measures which ought to be used for regulating the import and export of corn, being somewhat different from those entertained by that honourable gentleman, I mean at this time to offer a few remarks on some of the facts and circumstances detailed in his outline view. I take this liberty with diffidence, knowing that the Baron has devoted much attention to the investigation of these important subjects; though, if I can shew that any of his principles are erroneous, of course the conclusions drawn from them must fall to the ground, and be considered by political economists as built upon no other foundation than the sandy one of ancient prejudice.

1. According to the view of the subject taken by Baron Hepburn, it would appear that the late scarcity of grain, and every former scarcity of that necessary article, proceeded entirely from the discouragement given to the exportation. To make good this proposition, several preliminary points ought to have been considered. 1. Has Britain, for thirty years back, one or two years excepted, had any grain to export, after the home consumption was supplied? 2. Has the farmer suffered in consequence of the export trade being lost; in other words, has his commodities remained on hand for want of purchasers, or been sold at reduced prices during the above period? 3. Is the foreign market superior to the home one; in other words, will the farmer get a higher price for corn abroad, than within the bounds of his own district? 4. Has agriculture decreased, or taken a retrograde course, since the foreign trade was renounced? 5. Has pasturage increased in consequence of exportation having ceased; or, which is much the same thing, has a greater quantity of land been thrown into grass on that account, than what is required for the breeding and feeding of cattle and sheep for the use of the inhabitants? I apprehend that each of these questions must be answered in the negative; therefore, leave the reader to ascertain how far such a result will affect Baron Hepburn's chief or leading proposition.

2. Perhaps the Baron may reply, 'I grant that Britain has at present no corn to export; but this circumstance arises from exportation being discouraged. Give higher bounties, and the

trade will revive.' Were the honourable gentleman to make such a reply, it might be answered, 1. That no reasonable bounty would qualify the British farmer for competing with the foreign one, unless when extreme dearth prevailed, such as was last year in Spain. 2. That the increased and increasing price of grain, proves that agriculture has not suffered from the export trade being lost. 3. That the nation, which consumes or works up the produce of its lands, will ultimately be found in a more prosperous state than those who export raw produce. As, for example, would not the countries on the Baltic be more benefited by manufacturing the flax there raised, than by exporting the article in a state only one stage removed from its primitive appearance? And, to come nearer to ourselves, does not Britain receive incalculable benefit from working up its wool into cloth and other articles, instead of sending the raw article to France and Flanders, as was formerly the practice? Precisely in this light must the home consumption of corn be regarded. It is infinitely better to use it at home, in supporting manufacturers, who give little aid in the rearing of it, than to export it to other countries. In the first way, agriculturists not only get a higher price for their articles than otherwise could be got, but the nation at large is thereby greatly benefited. In fact, though corn, under existing circumstances, is not actually exported, yet the object, in favour of which Baron Hepburn contends, is gained in a superior degree. The raw article, as happens with wool, is manufactured at home, and afterwards exported, in the shape of goods, to almost every country in the known world.

3. I am afraid that the suppositions made in the third paragraph, p. 151, will be considered by the generality of people as altogether visionary. No doubt, if the figures assumed as *data* for ascertaining the consumption of corn, and the quantity produced in plentiful seasons, were correct, the extra quantity which remained on hand for exportation, would in a great measure remove every dread of dearth, even in the most unfavourable seasons. But then, how is this extra quantity to be procured? Certainly not by exportation; for, under existing circumstances, such a measure would only serve to lessen the stock in hand; therefore a new market is not needed till a surplus stock is accumulated. So long as British grain can be sold at home, it is demonstrable that agriculture receives much more encouragement than it would receive, were bounties to be doubled, and exportation to foreign countries encouraged.

4. Baron Hepburn appears to have fallen into a mistake, when he considers an abatement of one fourth from the average produce as only affecting consumption to the like extent, because, in

in reality, such an abatement has much more influence in the market than is generally supposed. To illustrate this remark, take a case in point. A farmer who usually raises 3000 bolls of grain, whereof 900 or thereby are consumed at home, leaving a disposeable produce of 2100 bolls, had in 1799, after his customary sowing, no more than 1900 bolls of grain, consequently only 1000 bolls to sell. Now his crop was little more than *one third* deficient in gross produce, yet the public received *less than one half* of the supply usually furnished from the farm in question. Few political writers entertain correct ideas on this matter.

5. I am inclined to think that no measure whatever could have prevented the scarcity of 1799 from being severely felt. In point of fact, prices were higher for crop 1800, though the crop of that year was superior to the preceding one. In 1799 a great deal of old grain remained on hand; whereas, in the succeeding year, no resource was left, but importation from foreign countries.

6. That Britain, under existing circumstances, must apply to foreign countries for a supply of bread corn, whenever bad seasons happen, may be reckoned equally true as any proposition in Euclid. If this dependence on foreigners is meant to be removed, (on which point I am a little sceptical), other measures must be resorted to than those suggested by Baron Hepburn. Increasing the rate of bounties will never do it. In fact, the only means that can be successfully used in South Britain, are, increasing the extent of cultivated land, and promoting improved husbandry. The first may be done by a general division bill, whereby much waste and unproductive land would instantly be brought into action: the other would be greatly facilitated by a commutation of tithes, and a regulation of the poor laws, improvements being greatly impeded by both. Even under the present system, the cultivation of waste land is gradually taking place, though not so fast as the increased population and luxury of the country requires.

7. The situation of British husbandry, when the island was governed by the Romans, is but distantly connected with the subject in hand; unless the Baron means that the scale of population is not changed, and that the like quantity of bread-corn was required at that period as at the present; nor does the state of agriculture, in the reigns of Edward the Confessor, or Henry VII., bear much affinity with that of the present day. That the population of Britain is more than doubled within the three past centuries is almost indisputable; and that luxury, in other words, riches, has increased in a far greater degree, will hardly be questioned. Now, as the circumstances under which the country is

placed, are so materially altered, it is obvious that no useful information can be drawn, either from history or the statute-books, applicable to the corn trade of Britain at the present time, though on these the Baron places his chief dependence.

8. What is stated in the third paragraph, p. 155, about the price of wheat being only 3s. 1d. *of our money* per quarter in 1266, and that in 1270 it advanced to 19l. 16s. 9d., is rather of a questionable nature. In making this remark, I by no means attach blame to Baron Hepburn having noticed the circumstances which he quotes in the printed work alluded to. It is the offspring of fancy, however, to suppose that, had importation been encouraged in 1266, the price of wheat might have been raised to 10s. per quarter, and the after scarcity prevented. Perhaps there was no demand from abroad at the time; at any rate, there is not the smallest reason for supposing that an exportation would have taken place sufficient to raise the rate of markets no less than 220 *per cent.*

9. There can be no doubt but that the violent disputes betwixt the Yorkists and Lancastrians greatly injured the husbandry of England for many years, because the tenants of the chiefs on each side, and their servants, were forced into the field, according to the custom of the times; consequently, the dreadful slaughter which took place in so many battles, desolated nearly one half of the kingdom. The battle of Towton in Yorkshire laid waste all the northern counties; indeed, without laying any stress on the exportation of corn being neglected or discouraged, it is evident that husbandry must necessarily have been impeded for many years in consequence of these civil broils. We may figure what would be the situation of East Lothian or Berwickshire, were one half of the tenantry and their servants killed in battle. On these accounts, it is apprehended that the statute of Henry VII. anent decayed houses, does not bear upon the matters under consideration.

10. Baron Hepburn seems, however, to think that the abandonment of husbandry, in consequence of the low price of grain in 1266, occasioned the above statute. This, to be sure, is a wonderful discovery, and proves, that the legislature, for a period of no shorter endurance than two hundred and thirty years, had remained ignorant of the evils which these low prices had occasioned. The enormous price of wheat in 1270 might have been supposed sufficient to replace the loss sustained only four years before by agriculturists, and, by a parity of argument, to have given a spring to its progress, capable of surmounting every impediment. Perhaps the Baron has mistaken the meaning of the statute, as Henry VII. did the causes of the evil he wished

to

to remedy. The King's object seems to have been, to keep up houses after their inhabitants were destroyed in the contest betwixt his family and the Yorkists; whereas, the Baron brings forward the statute as evidence, that the low prices of 1266 had occasioned the abandonment of husbandry in 1497!!

11. The large flocks of sheep kept in the reign of Henry VIII. could not raise the price of that animal, but necessarily would serve to reduce it. The legislators of that period may be considered as lame judges of what constitutes the true principles of political economy. Their enactments deserve respect, much more on account of their antiquity, than for the portion of wisdom displayed in them.

12. It is doubtful whether agriculture received any shock, at least in Scotland, during the period characterized at the time of the *grand rebellion;* but, be this as it may, it is consistent with facts, that a greater scarcity prevailed in Britain, in 1698 and 1699, ten years after the first bounty bill was passed into a law, than had happened for several centuries, even greater than occurred a few years ago. From these things, it may be inferred, that fiscal regulations have small influence upon prices; but that those, at all times, are almost entirely governed by the goodness or badness of the seasons.

13. What Baron Hepburn maintains, in the third paragraph, p. 159, is undoubtedly correct, viz. that, for seventy years after the bounty act passed, we had a more plentiful supply of bread-corn, than, during the same period, before the bounty was granted. But this fact is not conclusive in the way stated by the Baron; as, from registers of the weather, it appears that, with the exception of 1709, 1726, and 1740, there were a succession of fine seasons, from 1700 to 1757, rarely known in this island. The fact is, that the bounty served the farmer in these good years, by enabling the merchant to purchase his surplus corn, which otherwise might have lain like a drug on hand. This may be safely granted, without impugning the system of corn laws latterly adopted.

14. It does not appear that the influx of money, from the exportation of corn, occasioned a reduction of the rate of interest, because this measure was certainly produced by the growing prosperity of the country. The interest of money has always been lower in Holland than in Britain, though Holland raises but a small proportion of the bread-corn consumed by its inhabitants. What is said, page 160, concerning the remittances in 1795 and 1796 being so great as to occasion the stoppage of the Bank of England, is altogether inconclusive. These remittances certainly forwarded that unfortunate business; but it was the foreign sub-

sidies, and the money required to pay our armies abroad in 1793, 1794, and 1795, that did the fatal deed. The Baron, however, asserts, that the latter may be regarded as a drop in the ocean, when compared with the money paid for foreign corn, which is a mistaken assertion; for the Emperor of Germany, at different periods, received sums to a greater amount than what was understood to form the aggregate of the corn remittances.

15. If money is sent abroad, it would seem, in one point of view, to be altogether the same thing, whether it goes to the seller of blood or the seller of corn; because, in neither case, will it be returned to Britain, unless the balance of trade is in our favour. Precisely the same issue must happen, whether the money is sent to Germany or America. Remittances to foreign countries are rarely made in specie, generally in bills of exchange; and whether such are intended to pay troops, or purchase corn, we can only have returns in the course of trade, that is, when the balance is in favour of this country.

16. Every person must join with Baron Hepburn, in lamenting that money should be sent out of the country to purchase bread-corn, especially as there is a moral certainty of receiving a sufficient supply at home, were our own resources brought into action. Were the waste and common lands divided, and tythes arranged upon a fair and permanent system, English agriculture would receive a stimulus sufficient for accomplishing the object which the Baron seems to have in view, namely, a full and regular supply of bread-corn for the use of the inhabitants. It deserves consideration, however, that none of these measures are hinted at in the most distant terms, whilst encouragement to exportation is repeatedly insisted on, though it is notorious that we have nothing to export. Had the nation enjoyed a surplus, the case would have been reversed. A bounty, or rather a drawback from the numerous taxes laid on agriculturists, would, in that case, have been an eligible measure; but, as there is small prospect of a surplus being obtained, (at least no friend to his country, who understands its real interest, would desire it, seeing it cannot be gained, unless the prosperity of the country take a retrograde course), it may safely be maintained, that the bounty system is useless, under present circumstances.

17. That husbandry is much more favourable to population than what is usually called manufactures, is undoubtedly true; therefore, it may be believed that the two concluding questions put by Baron Hepburn will be unanimously answered, in the same way as he states to be applicable to the district where he resides. Every friend to his country must wish well to husbandry, as being the main pillar of the state. The point at issue is, whether injury

injury has been done by the corn laws passed since 1773. Baron Hepburn thinks husbandry has been injured, and characterizes the act of that year, commonly called Governor Pownal's act, because he moved it and managed the detail, in very ludicrous terms. In short, according to his description, it may be inferred, that our landed gentlemen in Parliament were totally inattentive to a measure which affected their interest deeply, and allowed a death-blow to be given to British husbandry, without offering the smallest opposition. Consider the present rate of land rent, and say, whether husbandry has got a death-blow from the corn laws.

18. Whether the ports, when Governor Pownal's act was in force, could be opened or shut in the fraudulent manner stated by Baron Hepburn, is more than I am able to ascertain; but one thing is plain, that had the Sheriff got justice, who acted in the way described by the Baron, he ought to have been turned out of his office with disgrace, as a warning to his brethren in all time coming. Since the act of 1791, no such frauds can be practised, the average prices being ascertained by a Jury, and certified by the Sheriff of each county.

19. Instead of bounties on exportation, which, in the present state of the corn trade, can do no good, it is presumed that a proper and sufficient duty on all grain imported would be a better safeguard to British husbandry than any other measure that could be devised. Were the British farmer protected from being undersold by the foreigner, the home market would yield him a better price than can be obtained in any country whatever, unless at periods when dearth may prevail; and it deserves consideration, that when dearth of any consequence happens abroad, grain is rarely plentiful or abundant in Great Britain.

I have thus, Sir, offered some detached remarks on a paper of some celebrity, trusting that they will meet with a candid consideration. I have the same object in view as Baron Hepburn, namely, the advancement of agriculture. We differ as to the most suitable means; the Baron thinking that encouragement given to exportation would be useful; whereas, in my humble opinion, all that is required, is protecting duties on foreign corn imported, which might be regulated in such a way as to insure the British farmer a constant preference in the home market. I am, yours, &c. A Rural Economist.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Letter from a Fifeshire Ploughman.

Sir,

The Fifeshire Ploughman would once more make his appearance; but having made a kind of half promise in his last, not to trouble

trouble you again for half a century to come, is really at a loss how to introduce himself into your presence, sensible his last epistle owed its place in your Magazine, more to your laudable determination to do impartial justice to every description of men, than to any merit it contained. With the deepest sensations of gratitude for taking so much notice of his rustic performance, and trusting once more to your candour and good nature, he submits to your consideration the following observations.

The Farmer's Magazine has so often received great commendations from the ablest of your correspondents, that any thing of this nature from me, would, I am afraid, rather degrade than add any additional lustre to your publication; shall only therefore say, I heartily concur in their sentiments of approbation,—that it is by far the best vehicle of information and intelligence, upon every branch of rural affairs, that has yet been in circulation. In it, theoretical speculations are made subservient to the purposes of practice, while a clear experimental knowledge of practical farming is exhibited in almost every communication. It indeed must give peculiar pleasure to every friend to the prosperity of his country, to see that long despised and neglected agriculture is no longer left solely to the profession of ignorant and illiterate men; but that her interests are espoused by men, whose education and abilities enable them to illustrate her various principles with perspicuity, and even adorn the rustic plough with all the graces of erudition, and beauties of refined composition.

If these observations be just, as I sincerely believe they are, then the Farmer's Magazine becomes an object well worth the attention of every farmer; and ought not only to be generally read, but every line, every sentence, nay, every word, clearly understood. This brings me directly to the object of the present paper. There are a considerable number of your learned correspondents, who are in the practice of introducing, now and then, Latin sentences into their communications, which greatly puzzle and perplex the illiterate ploughman. Whether this be to shew their learning, or whether it is the most happy and comprehensive mode of expressing that quantity of idea contained in them, I know not; but, whatever the reason may be, sure I am, the practice is repugnant to general edification. In an inquisitive mind, it may raise an unavailing curiosity, but never can reach instruction to the understanding of men ignorant of that language. Of course, disappointment and dissatisfaction must ensue. For my own part, I confess I have a kind of prejudice at that language, having in vain tried to learn its rudiments when at school; where, as if the defects of natural genius could have been

been made up by a liberal application of the *tawse*, I received many a sound drubbing from my master. Of course, whenever I meet with your *ipse dixits*, *ispo factos*, *capet mortums*, &c. &c. they instantly bring back to my mind the painful sensations produced by the rod of correction in my youthful days. In short, rather than see these formidable foreigners, in black italics, stain the pages of the Farmer's Magazine, I would sooner see my potato ridge covered from end to end with crows. The last have often invaded my property, and have put my ingenuity to the rack in order to get rid of them, but the former makes me feel my inferiority, and bid complete defiance to every effort of my feeble powers to develop their signification; I can follow your correspondents with pleasure and instruction while they keep on English ground, but the instant they flourish in Latin, there is a blank in the ideal line, and your humble servant is at as much loss as was the panic-struck king, with the mysterious hand-writing on his palace wall. In fine, whatever beauty and propriety your learned readers may see in these sentences, to the unlearned they are worse than useless; reason and revelation jointly attesting, that to no purpose is ten thousand words in an unknown tongue.

Next to the above mentioned evil, there are some terms relating to the science of chemistry hard to be understood, which possibly may derive their existence from a Latin source; or, what is more probable, they may have some relationship to the ancient Hebrew language, as many of them bear a striking resemblance to the names of those old gentlemen who stand recorded in the tenth chapter of Nehemiah, many of them so short and cramp, that they would require articulating powers peculiar to themselves, while others of them are so very long-legged, as to be completely beyond the powers of a ploughman's pronunciation. Indeed, I am convinced, were your Conductorship seated behind my *hallen*, when endeavouring to read some of the late papers upon the qualities of lime, it would strike you, that I had been at the building of Babel, and, amidst the general confusion of languages, had retained one peculiar to myself, never before heard among men. I have no doubt, however, but these discussions may have been conducted in a very able, scientific manner, and may have given great satisfaction to learned men; but the ignorant, who have by far the most need of instruction, I am afraid, for all that has been said upon that subject, will remain ignorant still.

Having thus stated my objections to some terms in your Magazine, which appear to me to be beyond the depth of common readers, I am aware it may be observed, that, if every other description

scription of readers understand them, it is a matter of no consequence whether persons of my description should know their meaning or not. With all due respect, however, for the opinion of my superiors, I beg to differ from them in this matter. Were ploughmen generally to read, and as generally inspired with the spirit that pervades the pages of the Magazine, the executive powers of agriculture would receive a new spring, as the judicious and enlightened plans of the master would be executed in as workmanlike a style by the servant, who would learn *there*, practical lessons in every branch of modern husbandry, with which the right performance of our business stands closely connected; and if self-interest is the most powerful stimulus to laborious exertion, then the enlightened speculations of a Pol-Œconomicus demonstrate, in the clearest manner, that the interest of the servant is intimately connected with the prosperity of the master. It is this that enables him to give employment, and high, well paid wages to the servant, while these wages, again, enable us to take another gill more, which augments the consumption, and, of course, increases the demand, and raises the price of his commodity. Most comfortable doctrine! most glorious speculations! The late rapid advance of wages makes us hold up our heads like men, and hail the new year in a superior style. The three cornered oat-meal cakes give way to gusty short bread, which before was an entire stranger, except at the birth of an only son; and, instead of a few pints of twopenny ale, we drink your health over a bowl of soul-inspiring whisky punch; and all this, so far from being any matter of grudge or envy to the master, may be hailed as a certain omen of better prices, and a sure indication of growing prosperity. Begging pardon for this pleasing digression, I once more observe, that, allowing it is a matter of little importance whether ploughmen either read or understand your Magazine, and that they are capable of answering all the ends of their creation, if, like the horse they drive, they are just endowed with strength of body and docility of temper to do what they are bidden; yet I have no hesitation in saying, that, to many farmers themselves, these sentences and terms are as unintelligible as the rude hieroglyphics inscribed on an Egyptian pyramid; and however deeply interested they may be to understand the processes of ascertaining the quality of lime, I am much afraid a very considerable number of that description of your readers, for all that has been said on that subject in your Magazine, are (to use our own mother tongue) 'as daft as wise' as when the discussion commenced; many of them within the compass of my own knowledge, very intelligent men, of real Fife breed, who, if they do not understand scientific terms, at least understand well the meaning

meaning of the Scots proverb, 'dirt gars bear grow;' and whose conduct on the field will stand a comparison with some of their new come neighbours from Berwickshire, who doubtless are great men, and whose practice is unquestionably worthy of imitation.

After all I have said on this subject, it is probable that the very things I have been complaining of may be marks of liberal education, and ornaments of literature. If this is really the case, I would, from no motives of self-information, nor any other consideration, have them expunged from your Magazine, as they may tend to dignify the subjects treated of in the eyes of the polite and learned world. All that I would request, therefore, is, that some of your learned correspondents would give us as plain and concise a definition as possible of some of these sentences and terms most commonly used in your Magazine, for the sake of unlearned readers. While such an explanation could not be taken amiss, as any insult upon the judgments of the learned, it would be an act of condescension to weaker brethren, which might render your Magazine more extensively useful, and for which every ploughman would be peculiarly thankful, and none more so than him who is, Sir, your most obedient servant,

20. *Jan.* 1806. THE FIFESHIRE PLOUGHMAN.

P. S.—I have great doubts myself whether the above be worth a place in your Magazine; if you are of the same opinion, I beg the favour of your consigning it quietly to the flames. Whatever be its fate, I am certain, were it not that great folks do not like to shew their ignorance, many of your readers that wear a brawer coat than your humble servant, might with great propriety sign this petition.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

On the Diseases of Calves, &c.

SIR,

IN a country where the healing art has acquired such eminence and perfection, it surely must appear surprising, that its benefits have been entirely confined to the human species, and that amid such a variety of practice, (when the country teems with the ministers of health) none of its professors have paid any attention to the diseases of cattle. The importance of the study, upon the slightest observation, must be obvious to every one; and the advantages to be derived from a scientific investigation of this neglected department of the medical art, would necessarily be great

and

and many. To be sure, cattle, when compared to man, are subject to few diseases. Civilized society, and its attendant, Luxury, pave the way for distempers, which, in a state of nature, are unknown. Yet no one, who is accustomed to observe the economy of the fold, or the stable, can deny that cattle are subject to diseases, which are both sufficiently numerous and fatal, as to warrant the conclusion, that in the country a cattle-doctor is much wanted. As I am ignorant whether such a profession obtains in England, (though, from the Veterinary College in London, I should be inclined to think it did), or even in the southern parts of Scotland, you will please remember that I speak only of the northern parts of this kingdom, when I say, that cattle-doctors are entirely awanting, that is, any on whose abilities one can rely. Here, indeed, the treatment of the diseases of cattle is either left to the operations of nature, or, at fartheſt, the attendance of some old matron is requested, who, from her length of days, and being the inheritor of the knack of her mamma, has acquired some experience, many absurd practices, and a great many words. Indeed, even these *canny* dames are but thinly studded over the country, being neglected by those of better sense, and only employed by their own *cronies*, who dread the death of their favourite *bawkie* as the ruin of their fortune, and who will put implicit confidence in all the superstitious absurdities these dames practise. I am only acquainted with one or two men, who are pretty successful, in as far as relates to the surgical treatment; but their knowledge is very confined, as their practice is entirely guided by experience, and reducible to no rational theory. Cures, however, they certainly perform, sufficient to shew of what immense advantage a person of education, sound sense, and keen investigation, who bestowed his whole attention on this department of physic, would be to the country. Nor could a regular practitioner fail to find it as profitable, and in time as respectable, as the present medical practice. In the present state, however, I cannot help thinking, that a small portion of your Magazine should be consigned to the propagation of *experienced cures*, and that your correspondents would be as advantageously employed in communicating the *cures* that have fallen under their observation, as in some of the speculations in which they have indulged themselves of late.

The above remarks were occasioned by a communication in your last Number from Mr Sitwell, on the disease called the navel-ill in calves. Your readers must find themselves indebted to Mr S. for his communication of a cure for a formidable, and not unfrequent disease. The treatment pursued and recommended was, in the instance cited, effectual, and probably will be found

to

to be so in other cases of a similar kind. It is universally allowed among medical men (*apothecary-physicians* excepted), that the more simple the means employed to effectuate a cure are, the more is that practice to be preferred and followed. Now, as I have been in the habit, for some time back, of following a contrary method of practice, more simple in its nature, and more effectual in its operation, (a practice, by the by, not curatory, but preventive), I think myself bound to lay it before your readers, in hopes that they will follow my example, in communicating any thing that may tend to elucidate a subject highly important, though at present buried in obscurity and error. The practice I allude to is no other than the cutting with a pair of sciffars the navel-string of the calf, as soon as it is calved, about half an inch from the navel. Before I adopted this mode of procedure, (which, to tell the truth, I did from the recommendation of a wandering beggar), I found myself at a considerable annual loss, from the death of some of my calves from the navel-ill; but since I have adopted this simple practice, I have never seen a single death among my calves from the disease. If one pay a little attention to the theory of the disease, he will neither be surprised that it is induced by the exposure of such a length of *raw* substance to the action of the air, nor that it is prevented by the operation recommended. If the exposure of the navel-string to the air bring on inflammation along its course and round the navel, (which I take to be the nature of the disease), it is obvious, that the early removal of this substance will prevent its approach; as, from the small surface exposed after the operation, and the retraction of the divided parts, the inflammation is found to be but trifling. The navel-string, or umbilical cord, is the remainder of those blood-vessels which supplied the *fœtus*, and which, by the birth of the animal, and the attendant systematic changes, are rendered entirely useless; so that, the operation recommended above is only favouring the exertions of the system in throwing off what has now become unnecessary or hurtful. This operation is always performed on the human subject, and it may seem surprising that it has not been adopted by *vaccine accoucheurs*. That the practice may become more general than it seems to be at present, I think I have done my duty in sending an account of it to a publication so extensively circulated and universally read as the Farmer's Magazine, into which, by inserting this as soon as possible, you will oblige, yours, &c.

AGRICOLA BANFFIENSIS.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Observations on Potatoes and Turnips.

SIR,

IN No. 27. (p. 334.) of your publication, I find remarks by your very intelligent correſpondent *R. r.* on my potato huſbandry. I am much gratified by ſeeing ſo much attention beſtowed upon my Eſſay, by a perſon of his knowledge and experience; and confeſs the juſtice of many, though not all, of his remarks. In Numbers 2. 3. 5. 6. of Table VII., two acres were uniformly intended to be underſtood in four different places, where I had mentioned one, as appears from my explanatory letter, which you have done me the favour to prefix to the remarks. He will be the more ready, however, to make allowances for inadvertencies, when he conſiders that he himſelf is equally liable to them. Thus, (in page 338.), he remarks, that I ought to have ſtated the coſt of ſeed in the neighbourhood of Edinburgh, in the ſame proportion with that of the produce, although I have always done ſo wherever it is mentioned. He likewiſe repreſents me as ſtating the Guild peck of Edinburgh to be 19 lib. Amſterdam weight. The peck I aſſumed was the Linlithgow peck, (ſee No. 26. of your Magazine, page 130.), which I was informed was about three fourths of the Edinburgh peck. The price of 19 lib. Amſterdam weight in the year 1793, bought on the ſtreets of Edinburgh, was ſixpence; and I thought myſelf warranted in ſuppoſing, that the addition made to rent and ſervants' wages ſince that time, would make the addition to the price of potatoes at leaſt equal to the average expenſe of carrying them from a moderate diſtance to market; which prevented me from charging that expenſe as a deduction from the produce. As to the rent of three pounds per acre, it is certainly quite enough for my beſt ſoil, even if it were placed in the neighbourhood of Edinburgh. Compared with the richeſt ſoil not only there, but alſo in Kintyre, it is only poor ſoil, though I called it rich, compared with the ſtill poorer ſoil from which the ſmalleſt produce mentioned in the experiments was obtained. It is probable that land may be found in different parts of Scotland and England, rented at no more than three pounds an acre, which will yield double the produce of ſome other lands rented at one pound, and where that produce will be of double value; and to ſuch my compariſons were meant to apply. It is of no conſequence, then, as to the object of the experiments, (which is to aſcertain the effect of different applications of dung in varied circumſtances), whether I am correct as to the rent of land, and the price and meaſure of potatoes in the vicinity of Edinburgh;

Edinburgh; for the objections would have been completely prevented, by ſtating ſuppoſeable rents and prices at the places A and B. It may be ſaid, however, that the expenſe of culture and taking up the crop, will vary according to the value of the produce, whatever may be the geographical ſituation of the places compared: And accordingly, your correſpondent *R. r.* has changed thoſe two articles from 5l. to 8l. You will know whether he is juſtifiable in doing ſo, when I inform you, that female ſervants in this country receive three pounds during the harveſt quarter; and that day-labourers are hired for cutting hay, &c. at 2s. 6d. per day, beſides victuals.

The remark which bears hardeſt upon me, is for omitting, in my calculations, the purchaſe of dung, and its carriage to the field. This omiſſion did not ſeem to be of much importance in comparing the five acres in poor ſoil, with five acres correſponding to them in rich ſoil, ſince they received an equal quantity of dung, and as the difficulty of procuring that article, in the one caſe, would probably balance the additional profit obtained from it in the other, and make it of equal value in both. In theſe circumſtances, the omitting to charge for the dung, in all the acres, would leave the reſult of the compariſon exactly as if an equal charge had been made for each. I muſt own, however, that in comparing thoſe acres, which received different quantities of dung, ſome charge ought to have been made for that article. But I leave it to the candour of *R. r.* to determine, whether he has not been guilty of an error of at leaſt four times the magnitude, in charging the potatoes with the whole expenſe of the dung, the effects of which are ſuppoſed to extend to many years, under a judicious rotation of crops. I am not certain that the whole expenſe even of the culture ought to be placed to the account of the potatoe crop, when it is employed to ſupply the place of a ſummer fallow. From the obſervations that have been made, you and your readers will judge whether his amended *data* and calculations are more to be relied on than mine. I have furniſhed you with a number of facts; and I have attempted to compare thoſe facts in certain ſituations and circumſtances. But there is no doubt that ſuch compariſons may be varied according to prices, rent, and expenſe of culture. Perhaps your correſpondent ſuſpects me of ſuch partiality for potatoes, as to induce me to ſelect thoſe circumſtances which will place them in the moſt advantageous light, and lead to their more extended cultivation. This partiality I am not aſhamed to avow. I conſider them as the luxury of the rich, and the food of the poor; the chief cauſe of our population, and our greateſt ſecurity againſt famine. It would much ſtrengthen this ſecurity, if it were

found, in consequence of experiments to be made, that potatoes are of equal, or nearly equal value with turnips, as food for cattle. From the increased quantity which would then be raised for that purpose, a considerable part could be withdrawn in years of scarcity, for the use of man. In this country, it is the general opinion, that an acre of potatoes, of the prolific kind, will go as far in feeding cattle as an acre of turnips, and be of equal value when given to milch cows; with this important circumstance in favour of the potatoes, that the cows fed upon them get earlier in calf. This prolific kind, though not planted sooner than the beginning of June, will be ripe at the same time with the common kinds planted a month before it, which gives it the same advantage with turnip, in admitting of more previous culture to the soil, and interfering less with other farm operations. It is likewise the opinion of the most judicious persons I have conversed with, who are in the habit of giving both turnips and potatoes to milch cows; that potatoes are worth double their weight of turnip. Those two opinions (though experiments are wanting to confirm them) seem to coincide; as I have found that my best soil produced two tons of turnips for one of potatoes, when dunged (as far as I could judge by the eye) in the same manner. In favourable seasons, I have had fifteen tons of potatoes from an acre; and in my farm journal, I find the following account of produce from turnips. On the 25th December, 1794, from a row of a field of turnips, red and green topt, and white mixed, I pulled 102 turnips, being the produce of thirty yards of row. The roots weighed 288 lib., and the leaves 64 lib. avoirdupois. As the rows were 2¼ feet asunder, it took 5808 yards of row to make an English statute acre. By this proportion, the weight per acre was—

	Tons.	Cwt.	Qrs.	Libs.
Of root	24	17	3	8
Of leaf	5	10	2	14
Of both	30	8	1	22

I have land in which the weight of a turnip will not be more than that of a potatoe crop. On such land, potatoes are decidedly more profitable. But, assuming it as a fact, from the above *data*, until better are procured, that moderately good turnip land will produce double the weight of turnips which it will do of potatoes, by similar applications of dung, I could wish that some of your correspondents would make accurate experiments upon those crops, as applied to the fattening of cattle. Until that is done, I cannot allow with *R. r.* that a farmer ought to grudge every cart-load of dung diverted from the production of turnips to that of potatoes.

potatoes. The reſult of ſuch experiments as I have propoſed, may perhaps tend to prevent the value of potatoes from being regulated by the faſtidious taſte of our manufacturers, who can procure laws to enrich the farmers of foreign countries, by opening our ports to the produce of their lands, while the wholeſome potato, which glows in the cheeks of our peaſantry, can hardly be diſpoſed of at a price which will defray the expenſe of its culture.

I am ſorry to meet with the objection mentioned by *R. r.*, (which I hope is not a general one) of the potato on a fallow break becoming a troubleſome weed in the ſubſequent corn and graſs crops. I never found it troubleſome, except in rich garden ground, ſheltered from the rigours of winter. When I happened to plant potatoes twice in ſucceſſion, I have ſometimes ſeen a number of ſeedling plants from the potato-apples, which only appeared, like other ſmall weeds, to be deſtroyed by the plough and harrow; but I never obſerved that they were of the ſmalleſt detriment to corn crops. I have always found the land to be equally clean, and as little exhauſted after potatoes, as after turnips; truſting to my eye as the judge of the former, and to the goodneſs of the ſubſequent crops, as that of the latter. I am aware of your opinion (contained in No. 18. of the Magazine, p. 197) that turnips are preferable as a preparatory crop; and, therefore, you will have higher expectations from the account of my improved culture of potatoes, which I have not yet had leiſure to ſend you. In land not ſubdivided for a rotation, including winter crops, (which is the caſe with the moſt of this country) turnips muſt be taken up immediately after potatoes, ſo as not to deprive the cattle of the corn ſtubbles, and after-graſs of hay crops which ſurround them. It is evident, therefore, that no more can be ſown than will be needed during the few months they will keep in the houſe, or in covered heaps without doors. For the remaining part of the ſeaſon, potatoes muſt ſupply their place. It is true, Swediſh turnip will keep much longer than the common kind; but neither of them will ſtand a competition in this reſpect with potatoes. Even thoſe farmers who have well encloſed and ſubdivided farms, and who make great uſe of turnips, ought to have ſome potatoes as a corps de reſerve in caſe of accidents, to be employed with more advantage than turnips during froſt, or towards the end of the ſeaſon, when turnips are neither ſo palatable nor ſo nutritious.

The turnip (for the cultivation of which, I twice had the honour to receive a premium from the Highland Society) I know to be a moſt valuable article, from my own experience for twenty years, and from my confidence in your opinion of it, and

that of your correſpondent *R. r.*; therefore, wiſhing the potato to become its powerful coadjutor, though not its ſucceſsful rival.

I am, Sir,

Kilcalmonell,
8th October, 1806. } Your obedient Servant.
ALEX. CAMPBELL.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On Britiſh Graſſes reckoned moſt ſuitable for common Culture.

SIR,

HAVING, with much pleaſure, obſerved, among the premiums awarded this year by the Highland Society of Scotland, ſeveral given for Eſſays and Experiments on ſuch Britiſh Graſſes as have been reckoned moſt ſuitable for common culture, I inquired at ſome of the directors and members of the committee for prizes, as to the progreſs made in the inveſtigation of this important ſubject. I was thence much gratified to find, that two eſſays on this branch of agriculture had merited ſpecial regard, and, as excelling differently, had each obtained a conſiderable premium. Though not fully acquainted with the two eſſays alluded to, and but an imperfect judge of their reſpective merits, yet it occurs to me, from the information I received, that one of them muſt be peculiarly adapted to the notice of ordinary cultivators, as being remarkably diſtinct in its details, and from its being likewiſe confined to a few ſpecies well calculated to facilitate thoſe inveſtigations which have the beſt chance of being accurate and ſatisfactory in their reſult. This is the one written by Mr Don of the Botanic Garden, Edinburgh, one of the moſt correct and beſt informed botaniſts in this country. In the courſe of my inquiry concerning his eſſay and the ſpecimens of plants and ſeed preſented along with it to the Highland Society, I learnt that, a few months ago, he had ſold a ſmall quantity of the ſeed of ſeveral of the ſpecies mentioned by him in that eſſay, and that he has ſtill on hand ſome of the ſame, which he would diſpoſe of, made up in ſeparate ſmall parcels, with ſuitable directions reſpecting their culture. It ſtrikes me, that this circumſtance being made more generally known, through the medium of your deſervedly much read publication, may induce ſome gentlemen, when they peruſe the Eſſays on this ſubject, now in the preſs, to attempt further experiments on the cultivation of the different ſpecies, and prove the means of aſcertaining, with due preciſion, the ſituations preferably adapted to them, and their reſpective advantages or comparative value. As your readers may wiſh to know the names

of

of ſome of the ſpecies which have been recommended to notice, and of the ſeed of which Mr Don can furniſh a ſmall portion, the following liſt of their botanic names is ſubjoined.

Poa Nemoralis.	Feſtuca Elatior.
—— Glauca.	——— Pratenſis.
—— Alpina.	——— Duriuſcula.
—— Compreſſa.	——— Rubra.
—— Trivialis.	——— Cambrica.
—— Pratenſis.	Cynoſurus Criſtatus.
Dactylis Glomerata.	Alopecurus Pratenſis.
Holcus Lanatus.	Anthoxanthum Odoratum.

Permit me to mention, that Mr Don has likewiſe ſome of the plants themſelves now growing, a few of which he is willing to diſpoſe of along with the ſeeds. The plants may become of ſome uſe, by enabling gentlemen more readily to diſcover the particular ſpecies riſing from the ſeed, in caſe, from any accident, other gramineous plants ſpring up in the ſame ſituation.

Should any of your readers think of trying the multiplication and extended culture of a few ſpecies of hardy perennial graſſes, I would beg leave to recommend their doing this on a confined ſcale at firſt, with a few ſpecies only, and in a clean ſpot of ground, where their *mode* and *rate* of growth can be accurately marked during every ſeaſon of the year. In the preceding liſt, there are ſome which will be found to thrive better in one ſituation than in another.—This circumſtance ſhould be particularly noted, and the cauſe of their greater or leſs luxuriance ſhould be inveſtigated. The comparative value, too, of the different ſpecies, ſhould likewiſe, as far as poſſible, be eſtimated; and this may be judged of, in ſome degree, by the quantity, or dry weight, of the produce, and by its quality, aſcertained in the feed of different kinds of live ſtock. In purſuing ſuch experiments, it ſhould ever be recollected, that the value of moſt gramineous plants or crops, depends very much on their being cut, whether for green forage or hay, at a ſufficiently early period of their growth.

I am, with great reſpect and beſt wiſhes,
Sir, your moſt obedient ſervant, A. C.

FOR THE FARMER'S MAGAZINE.

Receipt for the Foot-Rot in Sheep.

First clean the foot thoroughly; then pare the hoof to the ſore. Make a mixture of tar, ſalt, and black ſoap, in equal quantities, and anoint the foot; then touch it with a few drops of vitriol, and it will run into the foot; after which, keep the ſheep on dry ground, or in a houſe, for a day or two.

BRANCH II.

Review of Agricultural Publications.

A Treatiſe on Leaſes, Explaining the Nature and Effect of the Contract of Leaſe, and the Legal Rights enjoyed by the Parties. Second Edition, enlarged. By Robert Bell, Lecturer on Conveyancing, appointed by the Society of Writers to the Signet. Edinburgh, Conſtable & Co. 1805. pp. 656. 8vo.

(Continued from p. 91, and concluded.)

We proceed with an examination of this uſeful work, and truſt that the importance of the ſubjects therein treated, will be viewed as a valid excuſe for devoting ſo much of our limits to this examination. Mr Bell deſcribes things as they are, and ſeldom ventures to offer an opinion concerning the way and manner in which they ought to be regulated. Under the circumſtances of the caſe perhaps he acted right; but, in the diſcharge of our duty, a different conduct becomes expedient. Unfettered with legal habits, and unincumbered with ancient prejudices, precedents have ſmall influence with us, unleſs applicable to exiſting practices. The improvement of agriculture is our primary object; therefore, when matters ſuch as thoſe inveſtigated by Mr Bell come before us, our judgement, of courſe, falls to be regulated by their tendency to promote or obſtruct agricultural improvement. Individual intereſt is a conſideration which ought not to ſtand in the way of public good; nor ſhould meaſures be countenanced which, directly or indirectly, are calculated to retard its progreſs or advancement.

Impreſſed with theſe ideas, we ſearched, with great anxiety, for Mr Bell's opinion on the great and important queſtion, whether a tenant ſhould have power to diſpoſe of his leaſe, as we are convinced that ſuch a power would be of infinite advantage to thoſe concerned in agriculture. That he has not ſuch a power at preſent, we are quite ſatisfied; but this ſtate of the matter does by no means prove the inexpediency of beſtowing it on him. In diſcuſſing this ſubject, Mr Bell appears to be working in trammels. His private ſentiments, as might be expected, ſeem to be favourable to the tenant; whereas his revealed will rather takes a contrary direction. The following paſſage juſtifies the opinion here given.

'When a proprietor makes a grant, the will of the proprietor muſt regulate the terms of his grant. No perſon can hold property without the conſent of the proprietor; nor can he hold it contrary to the terms of that conſent; hence, if a proprietor has given to one the privilege of

of poſſeſſing his property, that privilege cannot be transferred to another, contrary to the will of the proprietor.' p. 153.

We are quite clear that a proprietor may ſtipulate what terms he thinks fit when ſetting his land, providing he can procure people fooliſh enough to go into them; but the merits of the abſtract queſtion are totally unconnected with ſuch ſtipulations, and fall to be determined by other rules. It is not our wiſh to limit the proprietor's will and pleaſure in the mode or manner of ſetting his land, no more than we would do, were his will and pleaſure directed to the blowing up of his manſion-houſe, or the devaſtation of his eſtate, though, we humbly preſume, that, in exerciſing ſuch rights, his private intereſt would not thereby be promoted. Preciſely in this way may the queſtion of ſubſetting be conſidered. The proprietor may grant a leaſe that will prevent ſubſetting, though ſlender proofs are thereby furniſhed of the utility of his meaſures. Viewing the queſtion as one in which the public intereſt is deeply concerned, a few obſervations ſeem neceſſary.

In former times, namely, before the commencement of the ſeventeenth century, unqueſtionably it was a matter of importance to proprietors what ſort of tenants poſſeſſed their lands, becauſe their ſafety in ſome caſes, and their power in others, depended much on the character and fidelity of thoſe occupying under them. Hence farms did not originally deſcend to heirs;—hence upon the acceſſion of a ſingular ſucceſſor, whether onerous or gratuitous, every tenant, previous to the act 1449, might be removed. Under the circumſtances of the country at the time, good reaſons may be recognized why landlords were cautious againſt admitting any perſon to occupy their eſtates, except ſuch as were known to themſelves, or on whoſe fidelity they could rely. But ſtrong as theſe reaſons were two centuries ago, they are now without force, and inapplicable to the preſent ſtate of the country. A landlord, at this æra, has not much more interference with the tenantry of his eſtate, than with the taylors and ſhoemakers thereon. If attendance is given at term time, and conditions implemented, it is a matter of no importance to the landlord, whether the tenant is five feet or ſix feet in height; whether he attends at church or chapel; whether he wears a black wig or a brown one. In ſhort, the qualities of a tenant are now better aſcertained by the ſize of his purſe than by the ſtrength of his corporeal powers; and, laying prejudices aſide, it is hardly poſſible to figure one good reaſon why a general liberty of ſubſetting ſhould not be allowed, the tenant exerciſing that liberty being at all times liable for the facts and deeds of his ſucceſſor, in ſo far as reſpects the ſtipulations of the leaſe ſo transferred.

It is a task of some difficulty to argue this question with precision; because those who oppose the tenant's manumission rarely commit themselves by argument. Deeply entrenched among precedents and decisions, which perhaps were originally right, but now become decidedly wrong, the supporters of this remnant of feudalism obstinately refuse to urge a single reason in support of an antiquated system eagerly retained. That its retention is hostile to the interest of proprietors is unquestionable; for every thing which lessens the prosperity of agriculturists, necessarily lessens the value of landed property. That the public good, in other words, the produce arising from the real capital stock of the country, is also lessened by prohibiting subsets, is equally true; because such transactions would rarely occur, unless the tenant in possession was placed in circumstances which rendered him unable to cultivate his farm with advantage. But were it otherwise, what harm could a proprietor receive from a payment of surplus rent being made to the quondam tenant? If the farm is a good bargain, what does it matter to the proprietor, whether the original holder reap his gains from selling wheat and oats, or from the half-yearly payments of his successor? The old possessor must be satisfied with a less return, in the last instance, than if he bore the heat and burden of the day. In other words, he would get the market value of land at the time, whilst his successor would be placed exactly in the same state as if he had taken a lease from the landlord.

We have witnessed many subsets, and enjoyed full opportunities of knowing the reasons which caused them to be made. Generally speaking, inability to keep possession, or at least to derive the full advantages which the premises were capable of yielding, influenced the authors of such transactions. Now, as a good tenant, one qualified with suitable professional abilities, and with sufficient stock, will make 'two stalks of corn grow where only one grew before,' we should suppose, that every impediment thrown in the way of transference or subsetting, must be considered as tending to lessen the general interests of the community. To stop or obstruct subsets, in fact, is neither more nor less, in many instances, than compelling people to keep possession of land, which cannot by them be cultivated with advantage.

On these accounts, we decidedly maintain, that notwithstanding individuals may, from whim, mistake, or prejudice, erect impediments to national prosperity, no excuse is thereby furnished for the conduct of our judicial sages, in withholding their sanction to the practice of subsetting, when the measure is not prohibited by the agreement of the original parties. Though satisfied that the lease which prohibits a subset is one not calculated

to

to promote the public good, yet, as the parties have legiſlated for themſelves, it certainly is the duty of our law courts to enforce obedience in ſuch caſes. But this affords no reaſon for ſtopping ſubſets in caſes where the leaſe is ſilent on that head. Such a rule ſeems, however, to govern the ſages at the bar and on the bench, though derived from no better ſource than ancient prejudice. Conſtructive laws we have always reprobated. Indeed, laws of this caſt neceſſarily are oppreſſive, and may be viewed as inconſiſtent with the real ſpirit of Britiſh juriſprudence, though, in too many inſtances, ſupported and countenanced.

To ſum up the whole, the advantages which would flow from allowing ſubſetting are innumerable, whilſt none of them could cauſe the ſlighteſt injury to individuals. No doubt, a conſiderable time muſt elapſe before prejudices, ſucked in with the mother's milk, can be eradicated from the minds of proprietors, though, as we are daily becoming more and more a trading nation, it is to be hoped that mercantile principles will at laſt get the better of feudal and antiquated ones; and, finally, that the like liberty will be beſtowed on the cultivators of the ground in the management of their affairs, as has been long enjoyed by merchants and manufacturers. Till that period arrives, agriculture will not reach the acmé of perfection; much capital, under exiſting circumſtances, being inveſted in other purſuits, which otherwiſe would be employed in territorial improvement.

In the ſection on the obligations relative to farm-houſes, we find the following curious deciſion.

'The Mains of Halyburton were let in leaſe to Charles Ducat, for thirteen years, at the rent of 210l., with a clauſe obliging him to leave the houſes and biggings of his poſſeſſion in good, ſufficient, and habitable condition at his removal, and to take the ſame under inventory, under this condition, "that if the ſaid houſes and biggings ſhall have been then found to have been ameliorated, the ſaid Charles Ducat ſhall have allowance therefore from the ſaid Counteſs of Aboyne." The tenant applied to the landlord for liberty to build a larger and better farm houſe, which was refuſed, on which he proceeded to take down the old houſe, with a view of rebuilding it. On this occaſion, the landlord, under form of inſtrument, proteſted that he ſhould not be liable for the expence of the new houſe, or for any thing further than repairs, under the clauſe above recited.

'At the expiration of the leaſe, a valuation of the houſes was made, when it appeared that the value of the houſes exceeded what they had been at the commencement of the leaſe, 215l. 4s. 8d.; of which ſurplus, the proportion correſponding to the new dwellinghouſe over the old one, was 137l. 15s. 9d. An action was brought for the whole ſurplus, amounting, as above, to 215l. 4s. 8d.

'It

'It appeared from a proof, that the old dwellinghouſe had been uninhabitable, and ſtood in need of a thorough repair; that it conſiſted of no more than two rooms and a kitchen, and that the new houſe was of double the ſize, but was now of no uſe to the landlord, as he had taken the farm into his own hand; and this was the reaſon he aſſigned to the tenant for not authoriſing the enlargement of the houſe, and for inſiſting that it ſhould be repaired rather than rebuilt.

'The Sheriff, before whom the queſtion originally came, found that the houſes were neceſſary for the farm; and this judgement being brought under review by a bill of advocation, which was reported to the Court with anſwers, the Court adhered to the Sheriff's judgment by refuſing the bill.

'The prevailing opinion appears from the Faculty Collection to have been, that as the old houſe had become ruinous, a new one was neceſſary; and although the one in queſtion was double the ſize of the former, the addition was not conſidered as unreaſonable, and was therefore a melioration.—On the other hand, ſome of the Judges, we are told, did not conſider themſelves at liberty to inquire what was proper for the farm, but what was actually agreed upon; and in this view, if the old houſe was ruinous, the erection of a new one would be a melioration, for which, by the tack, the landlord was bound to pay; but, in ſo far as it exceeded the old one, they conſidered it as a new ſubject, and not a melioration of the old one; even had he repaired the old houſe, and built an additional room, the tenant could not have made his demand under the clauſe in the leaſe; and, in all ſuch caſes, it was ſaid that the Court ought to avoid making a bargain for the parties, different from what they themſelves have made and acted upon. On this reaſoning, the minority would have given the expence of building a houſe of the ſame dimenſions with the old one, but nothing more.' p. 194. 195.

It deſerves to be noticed, that the law ſeems to be altered, in a material point, by a deciſion of the House of Peers in 1772; and here we muſt differ widely from Mr Bell reſpecting the utility of the alteration. Speaking of an informal lease, where the queſtion ariſes with a purchaſer, he ſays,

'The right of a purchaſer ſtands on his feudal title; and the leaſe, which is a perſonal right, can reach him only through the act 1449. From the terms of this act, it is obvious that the leaſe, in the view of the Legiſlature, was a leaſe in writing, followed by poſſeſſion. This is confirmed by the meaning which practice has given to this act; for it has invariably been underſtood to refer to a written leaſe. The nature of the purchaſer's title requires ſuch an interpretation of the ſtatute; and it is an interpretation affording a certain guide, without which it will be impoſſible to draw a line betwixt the different degrees of informality and defect that may preſent themſelves. When the queſtion came firſt before the Court, they ſeem to have been of opinion, that an informal leaſe, though followed by poſſeſſion, could not ſtand in competition with a ſingular ſucceſſor; and it is perhaps to be regretted, that this

this opinion ſhould have been changed for one ſo likely to introduce uncertainty into the deciſions on this point, as that which has been ſince adopted. This firſt deciſion was pronounced in an action of removing, at the inſtance of the Counteſs of Moray, againſt certain tenants on the eſtate. It was the caſe of a widow claiming under her locality; but a widow, ſo claiming, is equally entitled with a purchaſer to remove from her locality lands every illegal poſſeſſor. The Earl of Moray entered into leaſes with Bain, Stewart, and others. The leaſes were made out, and properly ſigned by the tenants, but they had never been ſubſcribed by the Earl. On theſe leaſes poſſeſſion followed; and on the death of the Earl, the Counteſs Dowager purſued a removing, founding on her own title, and the informal nature of the leaſe. The Court of Seſſion found the leaſes ineffectual in a queſtion with the Counteſs, and ordered the tenants to remove. But this judgment was altered in the Houſe of Peers, and the leaſes were ſuſtained: 23d July 1772, Counteſs Dowager of Moray *v.* Bain, Stewart, and others.

'It is to this judgment of the Houſe of Peers we are to attribute thoſe which follow, May 20th, 1790. Skene againſt Spankie. The farm poſſeſſed by Spankie was formerly the property of the Duke of Athole; and the tenant, on the death of her huſband, received a permiſſion to remain in poſſeſſion, by a card in the following terms. "Dunkeld, November 1ſt, 1783.—Mrs Spankie may depend upon remaining in the palace of Falkland, and poſſeſſing the farm and grounds Mr Spankie held at the time of his death, at the rent he then paid, as long as ſhe pleaſes. (Signed) ATHOLE." This farm was ſold by the Duke to the late General Skene; and an action was brought by his heir for removing the tenant. But the Court held the writing to conſtitute a liferent leaſe, and not only aſſoilzied from the removing, but found the tenant entitled to her expenſes. A ſimilar deciſion was pronounced, February 8th, 1797, Drummond againſt Gow. In this caſe, an offer for a leaſe was drawn out in the handwriting of the heritor's factor, and ſigned by the tenant. The tenant was at the time in poſſeſſion of the farm, and it was not very clearly made out that poſſeſſion had followed on the offer. This alſo was held to be an effectual leaſe againſt a purchaſer.

'It is the uncertainty to which ſuch deciſions neceſſarily lead, that has induced me to expreſs a regret that the deciſion of the Court of Seſſion, in the caſe of the Counteſs of Moray, had not been ſupported in the Court of the laſt reſort. But it will not be underſtood, after the deciſions which have been ſo lately and repeatedly pronounced, that there can be any doubt on the point while the law remains unaltered; and therefore it is a rule founded on the preſent practice, that an informal leaſe, followed by poſſeſſion, will be effectual againſt a purchaſer or other ſingular ſucceſſor.' p. 250—253.

The decision in Lady Moray's case seems conformable to every maxim of justice and equity. The tenants had signed their leases, had entered to possession, and, in short, done every thing incumbent

bent on them. The defect happened on the proprietor's side, who, from indolence or some other cause, had neglected to put his signature to the deeds. Had the interlocutor of the Scotch Court been ratified by the Peers, punishment would have been inflicted on innocent persons, as certainly no blame attached to the tenants from any part of the recorded proceedings.

Mr Bell recapitulates the conclusions he has come to, on the different points of the fourth chapter, in the following words.

'1. A verbal leaſe may be reſiled from at any time, either before or after poſſeſſion has taken place on it, with this difference, that after poſſeſſion has followed, it muſt be given up at the expiry of a year.

'2. The verbal leaſe is not rendered binding by a reference to the oath of party, nor by poſſeſſion having followed on it, nor by *rei interventus*; only, it will be remarked, that where there has been a *rei interventus*, damages may be claimed by the party who has ſuffered from the breaking off of the agreement.

'3. A written obligation to grant a leaſe is equivalent to a leaſe, and either party may inſiſt for implement; and, where it has been followed by poſſeſſion, it will protect the tenant againſt a purchaſer, equally with a formal leaſe.

'4. An informal leaſe, defective in the ſtatutory ſolemnities, on which no poſſeſſion has followed, may be reſiled from by either party.

'Hence a leaſe agreed to be executed by ſeveral perſons, may be reſiled from, until the whole parties have ſubſcribed it; unleſs the perſon, whoſe ſubſcription is awanting, be a perſon whoſe faith was not followed; as, for inſtance, where a father, for his own gratification, has inſerted the name of his ſon into the leaſe, and the ſon has refuſed to ſubſcribe.

'5. An informal leaſe, defective in the ſtatutory ſolemnities, on which poſſeſſion has followed, will be effectual in all queſtions with the grantor and his heirs.

'6. Nay, further, a leaſe of this deſcription will, on the footing of the late deciſions, be ſuſtained, even againſt a ſingular ſucceſſor, and in burgage ſubjects as well as in land.' p. 253, 254.

The rights arising to the parties from the contract of lease, are discussed in the fifth chapter. Out of many decisions reſpecting the tenant's rights, we extract the following, as being of recent date.

'William Wilſon poſſeſſed Millholm, under a miſſive from the Earl of Dalhouſie, which was to endure for 19 years from Whitſunday 1788. —The tenant died in 1793; and, in 1797, a leaſe was formally entered into with Charles his ſon, then 19 years of age, for the remaining years of the term; "but excluding aſſignees and ſubtenants, without the proprietor's conſent in writing." Charles having fallen in arrear, aſſigned the crop and ſtocking to John Wilſon, whoſe father had become cautioner for the rent, in a removing brought by the proprietor; and the

the tenant further appointed John Wilson "his steward, manager, and overseer of the farm;" the produce of which, the tenant directed to be applied, 1. in payment of the rent, public burdens, and expenses of management; 2. in payment of the tenant's debt to two sisters; and the residue was to be paid to the tenant himself.

'The management of the farm was conducted under the eye of Wilson the overseer, who, however, did not reside on the farm; the plan of management pointed out by the lease, was strictly adhered to, and the rent was regularly paid. Charles, the tenant, satisfied with this arrangement, joined a regiment of militia, and afterwards went to Jamaica, on which an action of removing was brought, on the ground of his having deserted his farm without possessing a power of assigning or subsetting.

'The argument maintained by the landlord, as we learn from the Faculty Collection, seems principally to have turned on the *delectus personæ* which the landlord possesses, and which, tending to give a very strict interpretation to the rights of tenants, will not admit of any device, by which a subtenant may assume a fictitious character; and, here, the appointment of John Wilson, is a mere device to evade the exclusion of assignees and subtenants:—that, as the tenant has gone abroad, the farm is not only managed by a stranger, but the landlord has lost the privilege of enforcing the lease by personal diligence.—The claim of creditors under the trust, was said to give no force to the tenant's plea, as a creditor cannot even adjudge where assignees are excluded.

'To this it was answered, on the part of the tenant, That there could be no *delectus personæ* where a lease was given for a period of years to a tenant and his heirs:—that the Earl could have no ground of complaint, as the farm is cultivated in the manner prescribed by the lease, and the rent regularly paid:—that the lease contained no stipulation to reside on the farm; and the tenant cannot be said to have deserted it in the sense of the Act of Sederunt (Dec. 14. 1756), since he has put the farm under the management of a person capable of doing his duty, and who does it:—nor does the power he has given to his manager, imply a transference of his rights to the profits of the farm; it is, on the contrary, a laudable expedient for paying a just debt to his sisters. It appears to have been further argued, that the exclusion of assignees was not absolute, but only required the consent of the proprietor, which does not admit of his arbitrarily withholding his consent; nor can there be any reasonable objection made to the person to whom the management is committed. The circumstance of the tenant's being no longer liable to personal diligence, was said to be unavailing, on the authority of the case, Crawford *v.* Maxwell, June 28. 1758.

'The Lords decerned in the removing, on the ground, as it is stated in the Faculty Collection, that the tenant having left the kingdom, and thereby withdrawn himself from the jurisdiction of the Courts of this country, must be held as having abandoned his lease; and the farm being thus without a tenant, the landlord was entitled to enter into possession.' p. 61–3.

If

If arguments were wanting to prove that money laid out in the culture of land, is imperfectly secured under the existing legal system, a sufficient number might be gathered, from the principles acted upon in the above case. The tenant took a prudent step, in conveying his lease to another, who, in fact, appears to have borne no other character than manager of the premises, and was accountable for his intromissions. Granting that the deed executed was intended merely to cover a transaction not warranted by the original lease, we would ask, what harm could the landlord receive from the transaction? The assignee was allowed to act, so long as his principal remained in the kingdom; but, on his departure to Jamaica, the action of removal was brought, though this departure occasioned no real change in the circumstances of the case. Here we shall be told, that the *delectus personæ* possessed by the landlord, warranted the decision which followed. This we do not mean to dispute; though, with submission, we maintain, that such a power is inconsistent with agricultural prosperity; because money invested in the culture of land, is thereby, in numerous instances, placed upon an insecure and precarious footing.

The decisions respecting straw and dung are of an ambulatory nature. In fact, no fixed rule seems to be adopted for deciding questions issuing from these sources; therefore tenants should take care, when their leases are framed, to have such matters properly settled, otherwise a law-plea at departure may be the consequence. The Court of Session, as yet, seem not to have got quit of their *bear-seed prejudices*, though the system of farming now practised is entirely opposite to, and inconsistent with, a bear-seed application. Many tenants, however, rather than lose all, hazard their dung on bear land, though, in a public point of view, this invaluable article is thereby misapplied. In fact, the using of dung in this way is extremely injurious to the incoming tenant; because it deprives him of manure for his summer-fallow, and lessens the extent of his wheat land. The rules laid down by the late Sheriff of Haddington (the oldest British Judge in existence), seem well calculated to promote the interest of the public, and the several parties, though we are not sure whether they have been recognized or confirmed by the superior Court. According to them, the outgoing tenant is paid for all the dung left on the premises, at a rate effeiring to the supposed benefit which could be got from one crop; and the extent of this benefit is determined by neutral men mutually appointed. The faith of tenants in these rules has, however, somewhat abated, since the decision was given in the case of the Earl of Wemyss *versus* Wright (detailed by Mr Bell), by which the Earl was found entitled to the

the whole dung on hand at the expiration of Mr Wright's lease. An outgoing tenant should therefore take care either to bargain timeously with his successor, or apply the manure on hand to his last crop, otherwise he may lose it altogether.

In the case of accidental fires, we have always considered the landlord as liable to make good the loss sustained, and are happy to observe this opinion supported by Mr Bell. In the second section of chapter fifth, after illustrating the rights retained by the landlord, he adds—

'It follows as a neceſſary conſequence of the right of property remaining in the landlord, that any loſs, total or partial, happening to the ſubject, during the currency of the leaſe, falls upon the landlord; and, of courſe, that the tenant is entitled to relief of the rent, in proportion to the dilapidation of the ſubject.

'This is the caſe where the ſubject is deſtroyed; as, for inſtance, where a houſe under leaſe is burnt down, the loſs is not thrown upon the tenant, unleſs it has ariſen from any fault or careleſsneſs of his; but upon the landlord. We have an example of the rule, as well as of the exception, in a caſe preſerved in the Fac. Coll. Hardie *v.* Black, March 3. 1768. A fire broke out in an upper floor, where the tenant had erected a comb-pot for dreſſing wool, and conſumed the houſe. An action was brought by the landlord for indemnification: in this action, it appeared that it was not unuſual, however dangerous, to erect ſuch furnaces in the upper floors; but that certain precautions were generally uſed, to prevent the fire from being communicated to the houſe; which had been neglected in this caſe. On the other hand, it appeared that the landlord had, for ſome time before, been apprized of the uſe to which the room was applied. The Lords found, "that the comb-pot was erected in an improper manner, and that proper precautions had not been taken to prevent fire; and therefore found the defender liable in damages to the purſuer, and in expence of proceſs." This is a deciſion founded ſolely on the negligence of the tenant; and while it proves that a loſs, ariſing from his negligence, will be thrown upon him, it proves alſo, that where there has been no negligence, the loſs will fall on the proprietor alone.' p. 283-85.

When explaining the rights acquired by the tenant, Mr Bell states, that

'The tenant has a right under his leaſe, in the mere character of a tenant, to the fruits and to the uſe and poſſeſſion of the farm: the rent which he pays is the price of theſe, and hence the rent cannot be demanded, where the fruits or poſſeſſion are not enjoyed by the tenant. Stair expreſsly ſays, "where the fruits and work doth altogether ceaſe without the fault of the conductor, there the hire muſt alſo ceaſe, becauſe the one is given as the cauſe of the other, and the peril undertaken is not of the *being*, but of the *quantity* and *value* thereof: for inſtance, if land taken be inundate or ſanded, and ſo have no fruit, it is the common opinion of all, that the hire or cane ceaſeth to be due for that

that time." Stair, B. 1. tit. 15. § 2. And further, "though the opinion of the learned (ſays his Lordſhip) be very diverſe in the matter of the barrenneſs of the ground, ſome accounting it if the half of the ordinary increaſe fail, ſome of the third, and ſome leaving it to the common eſtimation of the place, what it called barrenneſs, or to the arbitrement of the Judge; yet I think it more rational to determine that caſe with the reſt, upon the former, that, if there be any profit of the fruit above the expenſes, the rent ſhould be due." p. 323, 324.

Again,

'There ſeems to have been ſome queſtion as to what may be conſidered as ſterility; but Stair reduces it to the former rule, that wherever the produce leaves no profit above the expenſe beſtowed by the tenant in raiſing the crop, the ſterility is ſuch as to free the tenant from any demand of rent. We have but one caſe where this principle came to be applied; it is the caſe of the Earl of Eglintoun againſt his Tenants, Dec. 3. 1742, collected by Kilkerran, under the title *Periculum*, No. 2. and by Hume, No. 213. There happened, in June 1733, an extraordinary ſtorm of rain and hail, accompanied with thunder and lightning, which deſtroyed and laid waſte that corner of Ayrſhire in which the Earl's eſtate lies; and his curators not thinking it ſafe for them to give deduction of the rents without authority, they purſued the tenants for their rents. The tenants urged that the farms had been ſo laid waſte, that they had not reaped what was ſufficient for defraying the expenſe of ſeed and labour. To this it was anſwered, that it is not a ſettled point, whether even a total ſterility for one year does afford the tenant, who has a leaſe for ſeveral years, any claim of deduction on account of the ſterility of that particular year, and whether he ought not to compenſate the loſs of one year with the profit of another, ſeeing in all ſuch matters there is an evident chance which each party runs the riſk of. The Lords found no rent due by ſuch of the defenders as had reaped no more than about the value of ſeed and labour.' p. 331, 332.

We obſerve ſome important information on the means of ſecurity afforded to the landlord by *the act of ſederunt* 1756. By the by, we never could aſcertain whence the Court got powers to make this act, unleſs it is merely to be conſidered as explanatory of ſome ancient law or laws. If otherwiſe, which we preſume to be the caſe, a formal act of the legiſlature was certainly neceſſary, before theſe regulations were obligatory on the lieges.

Thus, we have endeavoured to give our readers a faint ſketch of this very uſeful performance. In fact, more light is therein thrown upon the law and practice of Scotland, with regard to leaſes and their effects, than by any former writer. We happen to differ with Mr Bell in a few things, though free to acknowledge that, on moſt occaſions, he diſplays a deſire to promote the comfort and intereſt of agriculturiſts. In a word, we earneſtly recommend the work to the attentive conſideration of our readers, being ſatisfied that they will not only find it a vehicle, by which

which beneficial information is conveyed, but also as furnishing much amusement, from the numerous decisions quoted in illustration of the subjects therein discussed.

Before concluding, we cannot avoid saying a few words on the legal polity of Scotland, in so far as it affects the occupiers of land.

In the *first* place, the situation of cultivators, though undoubtedly much improved, remains more precarious and dependant than that of merchants and manufacturers. In various points of view, the former have less command of their property than the latter; the property invested in rural improvement not being convertible into money with the like facility as may be exercised with that devoted to trading purposes. Under these circumstances, persons possessed of property are deterred from laying out any considerable part of it in the improvement of land; because it cannot be called back when wanted, or even destined in such a line as may be the ardent wish of the owner. Were leases rendered a marketable article, these objections would be removed. Were they even to be at the tenant's disposal, *when he could farm no more*, the evil would be partially remedied. The improvement of land is now become an expensive task; therefore, when a tenant's stock is put into the ground, and not received back at his decease, one member of his family may be enriched at the expense of the remainder. But a case is supposeable, which necessarily must produce consequences infinitely worse, namely, when the tenant dies, and leaves a young family behind him, none of whom are capable of following out his plans, or of exercising measures suitable for accomplishing a recovery of the capital stock expended on previous improvements. In such a case, a family may be ruined, even though their prospects are extensively affluent. Were the legal system of Scotland contrived in such a way, as to render a settlement of a tenant's affairs as easy a business as that of a merchant or manufacturer, the advantages therefrom would be numerous. Could a lease be sold or subset at the tenant's death, and the stock upon the farm be converted into money, the interest of all concerned would be greatly promoted. According to existing regulations, a partnership in agriculture is almost an impracticable measure, at least it is an imprudent one; but were things otherwise regulated, were leases allowed to be sold, partnerships would extensively take place, much to the benefit of those extensively embarked in agriculture. Agriculturists, as happens with other people, have different talents; some are better calculated for managing arable farms, than for general purposes. Others may be qualified for attending markets, or may be good judges of live stock. Blending these different qualifications in a partnership, would

therefore be eminently useful, though it is evident that no such arrangement can successfully take place under the present system.

In the *second* place, agriculture would be benefited, were leases, of longer endurance than nineteen years, protected from the claims of singular successors. We noticed on a former occasion, that such *singular* successors would not thereby be placed in a worse situation, than the direct heirs of the grantor; and why they should be placed in a better one, we are at a loss to conjecture. A law which declared every lease to be legal and valid that was regularly executed, no matter what were its duration and terms, would be attended with incalculable advantages. Should it be urged, that such a law would prove injurious to heirs and expectants, we answer, that the injury, in such instances, would be less than when sales are made; and as every person, not restricted by entail, may sell the subject which belongs to him, no solid reason can be adduced, why he may not make a partial disposal of the same for a term of limited endurance.

In the *third* place, were leases considered as property, numberless evils would disappear, which at present obstruct and incommode agriculture. We are at a loss to figure the injury which proprietors would sustain, were this character bestowed on leases, though it is not difficult to recognize the advantages which would thereby follow. Every cause or circumstance which contributes to place the holder of a lease in a more respectable state or condition, necessarily serves to increase the value of landed property. The system of connexion betwixt landlord and tenant is constructed on more liberal terms in Scotland than in England; hence, a given spot of ground yields much more rent in the former than in the latter country; but were the impediments to be done away which we have suggested, the difference would become greater still, by the rapid spring thereby given to agricultural improvement.

Lastly, Were every feudal custom abolished, and tenants placed on the same footing with other members of the community, the public good would thereby be considerably increased. Were the lease framed on plain and solid principles; were its conditions to be the only law obligatory on the parties; were every reference to ancient custom and usage to be given up and done away; and were all attempts to put constructive burthens on the tenant disallowed by an express act of the legislature—then we might expect that agriculture would flourish with rapidity; that the occupiers of the ground would advance in character and reputation; that the country would increase in durable riches; and that the condition of all ranks, from the lowest to the highest, would be meliorated and rendered more comfortable and desireable than has hitherto been experienced. N.

BRANCH

BRANCH III.

Agricultural Intelligence.

It is difficult to ſpeak with preciſion concerning the corn crops of this year, accounts from the different diſtricts varying ſo much reſpecting their bulk and productiveneſs. Almoſt every one allows that they are inferior to thoſe of laſt ſeaſon; though, in general, they are rated as approximating to an ordinary average. In the earlieſt diſtricts, the bulk is confeſſedly ſmalleſt, rain being too late of arriving for cauſing much improvement; but many of the northern diſtricts, where the crop was not ſo far advanced, received conſiderable benefic from the full ſupply of moiſture in July. On the whole, wheat, when the extra quantity cultivated is taken into account, may be eſtimated rather above than below an average; though, as the conſumption of this article is daily increaſing, little cauſe is furniſhed for believing that the ſupply will exceed the demand; eſpecially as the quality of the grain is generally inferior to what was raiſed in the three preceding ſeaſons. Barley, again, is defective, both in quantity and quality, particularly in the beſt barley counties; while its culture, in many places, is almoſt laid aſide, and in few carried on ſo extenſively as formerly. Oats, generally ſpeaking, may be regarded as a ſhort crop. Where the early varieties were ſown, the growth of this indigenous plant was retarded, in the firſt inſtance, by exceſſive drought, and afterwards little forwarded by the rains at the end of ſummer. Some of our reporters ſpeak of leſs meal being yielded from the grain than laſt year; and this, we are inclined to believe, will be felt over all the eaſtern coaſt of the iſland, where the rage for ſome years paſt has been to ſow the early ſorts. Beans and peas, to the eye, are undoubtedly below a medium; but few trials have hitherto been made. It muſt, however, be remembered, that the crop of this year ſtands a chance of being depreciated more than it actually deſerves, on account of the weighty and very productive one which preceded it. The crop of 1805, taking it all in all, was, perhaps, ſeldom exceeded in this country.

Markets have kept pretty ſteady through the quarter; any difference that has taken place being againſt the purchaſer. At this time, qualities conſidered, there is ſmall variation from the one end of the iſland to the other, a circumſtance calculated to damp ſpeculators, and make the trade proceed in regular channels. In fact, ſpeculation, for ſome months to come, muſt be a hazardous buſineſs; becauſe, from the humidity of the weather, there is little grain in condition for ſhipping or carrying to a diſtance. The quantity of old grain on hand, when this crop was harveſted, has alſo rendered it leſs neceſſary to bring the new crop to market; and, of courſe, a much ſmaller quantity of

crop 1806 has been thraſhed out, than had taken place, at this period of the ſeaſon, with the crop of the preceding year.

Cattle markets have been tolerably briſk; and prices of lean ſtock have of late rather advanced; though, ſtill, they may be regarded as below thoſe of laſt year. The quantity of aftermath and foggage, occaſioned by the autumnal rains, enabled a full ſtock to be kept; though turnips, as a crop, being below par, the after ſupply may become more limited. Sheep remain at much the ſame prices as laſt year, eſpecially thoſe of good quality; though, at this ſeaſon, and for ſeveral months afterwards, markets are generally filled with droves from the Highland diſtricts, and a nominal depreciation appears, while, in reality, prices may not be much altered.

A partial failure of that valuable eſculent the turnip, ſeems, this ſeaſon, to have happened in many diſtricts, which is exemplified by the high rates given for decent fields. The light, clever ſoils, ſeldom, perhaps, produced a crop of greater weight; but the thin lands, and all thoſe incumbent on a retentive bottom, have, from an exceſs of moiſture, failed in a greater or leſſer degree. Some people think that the culture of this root is decreaſing in ſeveral diſtricts, a ſtrong inclination for wheat cauſing many farmers to reſerve their dung for raiſing an increaſed quantity of that grain. We believe there is ſome truth in this opinion; and concur with the meaſure, in ſo far as the decreaſe has taken place on wet or clay ſoils. On thoſe, we have repeatedly ſtated, that turnips cannot be raiſed with advantage; any gain, in the firſt inſtance, being more than loſt in the ſubſequent years, independent of the damage done to the ground in the courſe of conſuming or carrying the crop.

It gives us pleaſure to record a detailed account of the ſale of ewes and gimmers lately made by that eminent breeder, George Culley, Eſq. at his farm of Eaſtfield, near Berwick. A particular account of this ſale is given in an after article. If reward follows merit, few people are deſerving of a larger portion than this gentleman, who, as an agriculturiſt, is known in every quarter of Great Britain. The diſſeminating of ſuch a ſtock, muſt be the means of producing incalculable benefit in other diſtricts; the ſucceſs which has accompanied Mr Culley's efforts to improve his breed of ſheep, being the ſtrongeſt incentive to others in purſuing ſimilar meaſures.

As an inſtance of the great attention now paid every where to the improvement of live ſtock, we notice, with pleaſure, that F. Sitwell, Eſq. a Northumberland gentleman of conſiderable property, and gifted with taſte and capacity for aſcertaining the beſt breeds of cattle and ſheep, lately explored the Weſtern Iſles, and examined the cattle of thoſe diſtricts, ſome of whom are allowed, by judges, to be of an excellent kind, and calculated to yield beef of the fineſt quality. Mr Sitwell, we underſtand, purchaſed a bull and ſeveral cows at very high prices, from which, it is to be hoped, he will rear a good ſtock on his Northumberland lands. We cordially wiſh him every manner of ſucceſs, and

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cannot avoid beſtowing applauſe on his active endeavours. Improvements of this deſcription are beſt executed by landed gentlemen like him, eſpecially if it happens (as it does in his caſe) that they are qualified to make them with judgement and effect. To tenants, ſuch attempts might be followed by unfortunate conſequences; whereas, to an affluent landed gentleman, a failure is of trifling moment, and not to be put in the ſcale with the benefit which may be gained, when ſucceſs is the conſequence.——*Oct.* 31.

Extracts from private Correspondence.

SCOTLAND.

Extract of a Letter from the diſtrict of Carrick, October 16.

'The weather, ſince the commencement of this quarter, has been variable: but cannot, upon the whole, be ſaid to have been unfavourable. From the beginning of harveſt, which uſually happens here about the middle of September, there was more rain than could have been wiſhed; but there were good days intervening, and the harveſt cannot be called a bad one. For near a fortnight paſt, the weather has been extremely good; and the harveſt, though not altogether, is very near finiſhed. The crop is looked upon as nearly an average one,—the oats eſpecially, which is yet our ſtaple crop. The greateſt deficiency will be in the bear and the wheat. To compenſate for this, the crops of potatoes and turnip are abundant, as is the aftermath of rye graſs and clover; and, from the kindly nouriſhing weather, ſince the middle of July to this preſent time, the common paſtures have greatly mended, and afforded ſufficient food for the cattle.

'As the weekly corn market is not yet eſtabliſhed, it is difficult to aſcertain the preciſe price of grain at this ſeaſon of the year. From the reports of a greater deficiency of crop in other places, the price is expected to riſe, and the farmers, of courſe, will keep aloof till they have better information; certainly there is leſs advance in the price of grain than any other commodity whatever. The demand for black cattle and ſheep has continued, and the prices have not greatly varied from laſt year. Moſt of the cattle reared in this diſtrict, are ſent up to England under the name of lean cattle, and their price muſt be regulated by the demand in the Engliſh market. The ſheep are uſed for home conſumpt, and are killed at two and three years old off the paſtures where they are reared; that is, the jobbers and butchers buy them at that age, at from 12s. to 30s. a piece, and drive them to ſupply the towns in the weſt country.

'The wages of farm ſervants are not diminiſhed, but rather increaſed. A firſt-rate ploughman will get 10l. and 11l. in the half year, beſides victuals, waſhing and lodging. A maid that is thoroughly acquainted with the dairy, will get 5l. for the half year, beſides bed and board. Harveſt wages are increaſed in proportion. Men from two to three

guineas; women from 38s. to 45s. for five weeks. Day-labourers, during that ſeaſon, get from 20d. to 2s. without meat, and a ſhilling with meat. Tradeſmen, and contractors for dikes and ditches, have advanced ſtill more in their demands. Though all theſe deſcriptions of labourers bear hard upon the farmer's pocket; yet, in a national point of view, it cannot be regreted, as it is a ſymptom of the improving, and, it is to be hoped, of the flouriſhing ſtate of the country. Only, the farmer will act wiſely, by taking all theſe various drains under conſideration, when he enters into contract with his landlord; for, as they muſt all be paid out of the profits of the farm, they ought juſt as much to be conſidered as rent, as the money which he gives into his landlord's hand.

'The rent of land is ſtill on the increaſe. It is true, that this diſtrict is only almoſt in the infancy of improvement; and it may be expected that the price of land will advance, till ſuch time as the country is brought to its higheſt ſtate of improvement; when it muſt become more ſtationary. But many people are of opinion that the riſe is too rapid, and bears no proportion to the actual ſtate of the country, and the ſhort term of a nineteen years leaſe, which is the common length of a leaſe that is given, whether the ground be in a ſtate of mere nature or not.'

Banffſhire Quarterly Report.

A CONTINUANCE of good weather, for five or ſix weeks paſt, permitted the harveſt to be ſafely finiſhed; and few days occurred in the courſe of it, wherein any kind of work, therewith connected, was interrupted. Appearances were not favourable at the date of laſt report, though, afterwards, the crop improved greatly, and may now be eſtimated as equal to an average one. Oats are the moſt defective article; having ripened unequally, particularly thoſe of the potato variety. Barley and wheat are of good quality, and the cultivation of this laſt grain continues to extend annually. Should it ſucceed as well every year, or nearly ſo, as it has done this one, there will be no reaſon for relinquiſhing it. Indeed, the high price of labour and rent cannot be ſupported, unleſs wheat makes a part of the crop, eſpecially when barley has an uncertain ſale. Markets for the new crop are not yet opened; but old oats are ſelling at 18s. per boll, of 128 Scotch pints; and meal, at 14½d. and 15d. per peck, in retail. A great number of cattle have lately gone ſouthward, at prices 20 *per cent.* below thoſe given in the firſt of the ſeaſon: ſo the graziers here muſt ſuffer ſeverely. Turnips are not generally good; but potatoes are very productive, and of excellent quality.——*Oct.* 18.

Abſtract of the Articles of Roup of the Farms of Baldoon and others, rouped by Lord Galloway at Wigtoun, 31. July 1806.

1. All the farms are to be ſet up nearly in the lots mentioned in the printed ſpecification, excepting the lands about Wigtoun, and farms betwixt Garlieſton road and the ſea, which are to be ſet up in larger lots, for the accommodation of people wiſhing large farms; without prejudice,

prejudice, however, to thoſe who may wiſh the above ground in ſmaller lots, to bid together for the lot expoſed; and if preferred to the ſet, to divide it according to the lots mentioned in the ſpecification, provided the offerer declares ſuch to be his intention when he ſubſcribes his minute of preference, and condeſcends on the perſon or perſons who take the land along with him, and alſo condeſcends, within twenty-four hours, on the proportion of rent to be paid by each.

2. No aſſignations or ſubſets of any partial part of a farm to be allowed, but a general ſubſet of the whole farm, with conſent of the proprietor, after the firſt ſix years, will be allowed, if the farm is then improved.

3. Mines—minerals—to be reſerved to the proprietor, and power of taking off ground for embankments, roads, planting, &c. on deduction of a proportional part of the rent.

4. The leaſes to be for nineteen years. The entry to the whole Baldoon lands, except two crofts, to be at Martinmas firſt. The lands of Sorbie and Connar at ſame term. The entry to Riſk, Whitſunday 1807, and to the other Minigaff lands, at Whitſunday 1809.

5. The tenants to be preferred to the lands in Wigtoun, and thoſe betwixt the Garlieſton road and the ſea ſhall pay the firſt half year's rent at Martinmas 1807, the laſt half year Whitſunday following; ſo that half a year's rent ſhall remain unpaid till the laſt year of the leaſe.

6. Conditions of Management.

1*ſt* Diviſion of the farms, viz. thoſe below Garlieſton road and the ſea; the farms of Connar and Sorbie.

Three ſixths may be in white crop; three ſixths in ſown graſſes, fallow, or green crop; and never two white crops running to be ſown, without the intervention of a fallow or green crop.

This diviſion is ſtrong rich land, moſtly adapted for beans and wheat. In times paſt, it has produced immenſe crops of oats.

2*d* Diviſion, comprehending all the grounds above the Garlieſton road.

One half of the arable land in paſture graſs; one fourth white crop; one fourth in ſown graſs for hay, or fallow or green crop, in ſuch proportions as the tenant pleaſes. Two white crops running may be ſown on this diviſion, but never more, without the intervention of a green crop; but, if wheat or lint, only one crop.

This diviſion is moſtly ſoil of a light quality; ſome of it mooriſh; and, upon the whole, adapted for Norfolk huſbandry.

In both theſe diviſions, ſome ſpecial rules will be laid down for the three laſt years of the leaſe, binding the tenants of the firſt diviſion to fallow or crop with green crop one ſixth of the farm each of theſe years.

And the tenants of the ſecond diviſion to fallow or crop with green crop one twelfth of the farm each of theſe years.

At the end of the leaſe, the crop to be left to the incoming tenant at a valuation.

7. Houſes to be built by Lord Galloway, the tenant furniſhing carriages of all kinds, and paying 5 *per cent.* of the outlay.

Fences to be made and repaired by Lord Galloway, on paying 5 *per cent.* of the outlay.—Or the tenant to ditch and drive ſtones for dikes, Lord Galloway to build and furniſh thorns and paling.

Letter from Langholm, October 19.

'The weather, during the harveſt quarter, has been remarkably variable, but generally inclining to rain, with a few dry days interſperſed; in conſequence of which, the operations of the ſeaſon have been tardy, and, for the moſt part, performed under unfavourable circumſtances. Harveſt work, which commenced here about the 20th of Auguſt, was moſtly finiſhed about ten days ago. From the heavy rains in the later part of July and Auguſt, the crops on rich ſoils were much lodged, and, from the moiſtneſs of the weather ſince, have generally been but indifferently got. A few dry and favourable days, ſince the 10th of this month, permitted the later part of the crop to be got in good order.

'Oats upon rich ſoils are, in general, a pretty good crop; but, owing to the ſevere drought in the early part of ſummer, have not ripened equally. This crop has likewiſe ſuffered much injury from the wetneſs of the ſeaſon, after it was cut, in many places. Barley has every where been luxuriant, and, from the quantity ſown, may fairly be ſtated above an average. The ſucceeding crop of young clover has likewiſe a promiſing appearance. Peas, from wetneſs, have gone much into ſtraw. Potatoes are a full crop; but, from the ſame cauſe, are not ſo good in quality as laſt year. Turnips, where the firſt ſowing did not fail, are abundant; and fruit is more plentiful than has been known for many years back. In general, the crop may be rated as equal to an average one in bulk, though perhaps inferior in quality to thoſe of former years.

'The paſtures at preſent afford abundance of food; and ſheep and cattle are in good keeping condition. Draught ewes have fully reached laſt year's prices; and black cattle of the younger kind are in demand, though the prices have dropped a little of late. Our grain and meal-markets have riſen ſomewhat during laſt quarter; but butcher meat has undergone very little variation. The price of labour ſeems to riſe daily; and manufactures, particularly for cotton goods, in conſequence of ſome late ſpeculations, are very briſk. But the riſe of rents has got above the ideas of the moſt ſanguine ſpeculators in that way, or even of the landlords themſelves. If the abſurdity of fixing the criterion of income by the extent of the rent paid, in aſſeſſing of tenants, is adhered to, that claſs of men muſt be ſoon placed in a very diſagreeable predicament; for it is evident that the farmer will be taxed in an inverſe proportion to his ability to pay. It is to be hoped, that the good ſenſe of the Legiſlature will diſcover the abſurdity of fixing the income of the tenant by ſuch a prepoſterous and arbitrary ſtandard, while the other branches of the community are allowed to tax themſelves, or at leaſt to refer their caſe to commiſſioners.'

Letter

Letter from Forfarſhire, October 21.

'THE weather, ſince the beginning of harveſt, has, upon the whole, been variable, yet not unfavourable to the operations of huſbandry at this ſeaſon. The corns, on the earlieſt grounds, were all in the ſtack-yard about a month ago, except where a ſecond growth had got up; on colder lands, they were moſtly ſecured about two weeks after. The ſtack-yards are not ſo bulky as laſt year; and a ſcarcity of provender in ſome places is dreaded, if the winter be ſevere.

'A larger quantity of Wheat was ſown laſt ſeaſon in this county than before remembered, and the produce *per* acre is ſhort of laſt year's crop, although I cannot ſay to what extent.

'Barley is conſiderably under an average, eſpecially on dry, early ſoils, where the drought, in the beginning of ſummer, injured it much. A ſmaller quantity of that grain was alſo ſown than uſual; many people ſubſtituting oats after turnips, in place of barley.

'Oats had a good appearance, but, upon trial, are found to be about two pecks of meal *per* boll deficient of what they laſt year produced; the quantity *per* acre will alſo be leſs.

'Beans and Peas are inferior in quality and quantity; in ſhort, the farmer expects a high price for every kind of grain he has to diſpoſe of.

'Turnips have improved much within the laſt ſix weeks; but in many places are ſtill thin on the ground: the firſt ſown are beſt: the roots are not ſo large as uſual. Eating of turnips with ſheep on the field has been introduced with tolerable ſucceſs, although the practice is not yet extenſively followed. There are many ſoils and ſituations in this county proper for the purpoſe, if a market could be found; perhaps ſpring wheat might ſucceſsfully follow, but I have had no experience of that practice.

'There has been a briſk demand for cattle lately; but the prices are ſuch as leave very little profit to the grazier. Many of them will loſe their graſs rents this ſeaſon, eſpecially thoſe who kept their ſtock on hand till lately. Breeding cattle is extenſively followed in this county; and it would be for the farmer's intereſt to pay more attention to a proper ſelection of ſtock for that purpoſe. Since the corns were got in, the weather has been very favourable for aration, and the ploughing for another crop is well advanced, which, on cold wet lands, is a high conſideration. Almoſt every farmer has enlarged his wheat ground this ſeaſon.

'Wheat ſells juſt now from 35s. to 40s. *per* boll; Barley, 24s. to 27s.; old Oats, 25s.; Meal, 1s. 5d. *per* peck; Beef and Mutton, 6d. and 7d. *per* lb.

'The rent of land in this county has riſen very rapidly within the laſt ſix months. No ſooner is a farm in the market, than a hoſt of candidates appear, only anxious to overbid each other; and the higheſt offerer, without regard to any thing elſe, is generally the favoured, honoured, man. I am glad to ſay, the renters of thoſe farms that have lately been let, are moſtly from Fifeſhire and the Lothians. As I conceive, they

they will be obliged to practiſe ſyſtems of agriculture that we are not yet acquainted with, and thereby enlarge our confined ideas, before they can pay their promiſed rents, and have any thing over, at all like what a farmer is certainly entitled to; at leaſt, from the moſt accurate calculations I can make, ſuch muſt be the caſe, even in a good ſeaſon, otherwiſe they cannot fulfil their engagements. In a bad ſeaſon, or when caſualties happen, what will be the conſequence? The only proſpect ſuch farmers can have is, that land and produce have been on the riſe for many years paſt. And why ſhould it not continue? On this, I ſuppoſe, they build their hopes of profit.'

Letter from Inverneſs-ſhire, October 22.

'We experienced uncommonly fine weather during harveſt, and the crop was ſecured in a ſatisfactory way. In this neighbourhood, barley is moſt excellent; wheat middling good; but oats are complained of as being ſmall in bulk, though, it is believed, in produce they are not amiſs. Potatoes, which here form the chief ſupport of the poor people, yield well; and turnips have turned out much better than was expected, the late dry weather being greatly in their favour. Lean cattle have declined lately in price, there being little or no demand from the drovers; and fat ſtock have a dull ſale. Little can be ſaid with reſpect to corn-markets, nothing but a few bolls of barley being yet ſold. Mutton and beef ſell in Inverneſs at 5d. *per* lib. Dutch weight; ſome principal pieces of the latter at 6d. Summer fallows were badly cleaned, owing to the continued rains in July and Auguſt. Wheat-ſeed is going faſt forward, chiefly on clover leas, and on land which carried potatoes. We now ſow ſo much, in this neighbourhood, as enables us to ſpare ſome for the ſupply of other markets.'

Dumfries-ſhire Quarterly Report.

For two weeks in September, heavy falls of rain retarded the harveſt, but without any eſſential injury, unleſs on a few farms where the barley crop had not been got up. A great deal of corn was by that time got into the yards without a ſhower; and what has been cut ſince the equinox, has alſo been put up in a perfect good ſtate.

The wheat crop appears to be fully an average in quantity and quality, excepting that, generally, it has leſs or more blacked ears; but this is not now held ſo hurtful, ſince the thraſhing mills have become general. The crop of barley is conſidered as of excellent quality. Oats are reckoned below an average, both in quantity and quality. Prices appear to be very little altered. New wheat has been ſelling at 9s. the buſhel; Barley at 5s.; and Oat-meal at 2s. 6d. the ſtone.

The price of cattle has been pretty ſteady. Thoſe of three years old, or upwards, and in condition for feeding off, have kept up fully the prices of laſt year; but inferior and younger cattle have been leſs in demand, and the prices rather lower.

Sheep, young and aged, carrying fine wool, have rather advanced; and ſuch wool has been ſold from 10 to 15 per cent. above the prices of laſt year. Moor-land, or coarſe-wooled ſheep, have not ſold ſo well.

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The preſent ſeaſon has been very favourable for wheat-ſowing. More fallow land has been prepared for it than uſual; and there are few farms in the cultivated part of the country, but have more or leſs of their potatoe land ſown with this grain.——*Oct.* 23.

Berwickſhire Quarterly Report.

THOUGH we were interrupted by frequent ſhowers, which made the harveſt tedious, no material injury has been ſuſtained from that circumſtance. Reaping commenced about the 26th of Auguſt; and the crop, in the lower diſtrict, was all ſecured, in good condition, by the 10th of October: in the late parts of Lammermoor, however, the ingathering is hardly yet completed.

Wheat bulks well in the ſtack-yard; but the ſamples are unequal in quality, and the return per acre will fall ſhort of laſt year. The quantity of barley cultivated this ſeaſon was inconſiderable; the return is middling, and the quality pretty good. Oats, in general, have not turned out a bulky crop; they vary much in quality, and will be conſiderably ſhort of laſt year's return. Peas are a poor crop: Beans, though not quite ſo bad, are much below mediocrity. Still, though the crop does not equal that of laſt year, yet, upon the whole, it may be conſidered as not falling greatly ſhort of an average one.

Reapers engaged for the whole harveſt had from 2s. 4d. to 2s. 8d. per day, with victuals; but, in the weekly markets, wages at one time were as high as 3s. 6d. per day.

Turnips have thriven well upon all the dry, true turnip ſoils, on which they may now be reckoned a good crop; but, upon mooriſh or retentive bottomed land, they are worth very little. High rates have been talked of for thoſe of the beſt quality; but, from the quantity of ſtock recently carried ſouth, the demand for winter keep is not likely to be ſo great as at one time was expected.

The latter part of ſummer was not propitious for working of fallows, few of which are ſo clean as could have been wiſhed. Wheat-ſowing is pretty well advanced; and, hitherto, the harrowing has been executed under favourable circumſtances. Paſture and foggage have been good, and young clovers are healthy. Potatoes are not yet all houſed; the crop will be but very middling.

Cattle markets were extremely dull in the beginning of this quarter, but revived a little in conſequence of the demand from England. Draught ewes have ſold much about the rates of laſt year; dinmonts rather lower.

Good beef is ſelling in retail at 8d., and mutton at 7d. per lib. Dutch weight.——*Oct.* 24.

Aberdeenſhire Quarterly Report.

THE laſt three months have been, in every point of view, the moſt propitious and favourable of the whole year for this corner of the country. The rains, which continued long and heavy, ceaſed about the beginning of harveſt, and the fineſt weather ſucceeded that is remembered by any man. This not only facilitated harveſt work,

but

but much improved the grain, and brought forward the lateſt part of the crop much ſooner, and to better account, than was looked for. Except ſome remainders here and there, the whole is now ſtacked in the higheſt perfection. The crop, both of oats and of bear, will be fine in quality, and plentiful in quantity. The ſtack-yards are fully up to the ordinary ſize, and the produce may be ſtated above an average. Peas are bulky, the ſtraw well got, but the grain ſmall. Both turnips and potatoes are alſo full and abundant crops, eſpecially on the dry grounds. Paſture-graſs has ſtood well to the end, and the clovers have planted well, and are ſufficiently cloſe and thick on the ground. The markets for cattle, which had for a long while been dull, have revived. Great numbers have been ſold off for the ſouth; the prices obtained have been 20 per cent. below thoſe of former years; yet, from the continuance of the demand, are now getting higher. Very little alteration has taken place in the value of ſheep, either for ſtock or for the butcher. The price of grain has continued ſteady: Meal from 17s. 6d. to 20s.; Oats, 18s. 6d. to 20s.; and Bear, 21s. to 23s.—all per boll.

As wheat has not yet come into the general rotation of crops in this county, very little attention is paid to the dreſſing of land during harveſt; of courſe, that part of the buſineſs only commences now. But it is of the greateſt conſequence, when the weather is ſuch as the fields can be ſoon cleared, to get forward with the agricultural operations. Upon the ſlighteſt look, any man travelling over the county, who is capable of judging in agricultural matters, will be ſatisfied that it is occupied by an induſtrious race; that they are puſhing on improvements with ſpirit and activity in their various departments; and that nothing can check or overthrow our huſbandry, except it be ſhort and uncertain leaſes, and exceſſive high rents, which no doubt deſerve to be viewed as the greateſt obſtruction to improvements.——*Oct.* 24.

Letter from Falkirk, October 24.

'Our harveſts in the Carſe are comparatively early, a circumſtance of much importance to the farmer. For the laſt ſix years, they commenced between the 18th and 25th of Auguſt, and were nearly finiſhed by the end of September. Several circumſtances concur in producing this. The intrinſic fertility of our ſoil; a climate tolerably good, from our being but a few feet above the level of the ſea; beſides that nine tenths of our wheat, being after fallow, is early ſown, to obviate the riſk of wet weather on our tickliſh ſoil. Potatoe oats, too, are now generally cultivated, and, as well as other ſpring ſeeds, put into the ground as early as poſſible. During the early part of harveſt, the weather was unſteady and perplexing, from frequent rain, although this was never in great quantity at a time, or long continued; and, having intervals of fine days, the operations of that ſeaſon were nearly finiſhed by the end of September, except a few ſtraggling fields of beans, which were alſo ſoon got in after that period.

'Wheat is abundantly bulky; and, were it to turn out on the barn floor

floor equal to the appearance of the ſtack-yard, would be above an average crop. This, however, can ſcarcely be looked for, as it was not merely lodged for ſome weeks before harveſt, but abſolutely levelled with the earth, which will neceſſarily occaſion much weak grain; and from this cauſe, in many inſtances, it was ſprung before it was cut. I believe fair ſamples of this grain will be ſcarce; and, in general, it may be ſtated much inferior in quality to that of laſt year. All our other crops are deficient in bulk, and (except beans, which, although not bulky, are well podded) will be below an average. If, along with this deficiency in bulk, we take into conſideration the ſcanty hay crop, fodder will probably be ſcarce, unleſs a continuance of fine weather permit cattle to remain long out of the ſtraw-yard. Although harveſt wages were nearly the ſame as laſt year, reapers appeared more plenty. The ſame remark will apply to labourers through the whole ſeaſon, although I do not know how this is to be accounted for.

'The ſeaſon has been ſingularly excellent for wheat ſowing, which has been finiſhed to a wiſh; and a fine, equal, healthy braird, every where covers the ground. The young graſſes never looked more thriving; and winter ploughing is already well advanced. Potatoes are nearly all taken up, and are a good crop. Our corn market has been, upon the whole, ſteady. So little, however, has yet been done with the new crop, that prices can ſcarcely be ſtated.

'At the laſt tryſt, the ſhow of cattle was uncommonly great, probably above whatever before appeared on the moor. Buſineſs went on briſkly, as the ſellers ſhowed uncommon eagerneſs to get clear-handed. Prices were conſequently below laſt year, probably 10 per cent. The ſale of horſes was alſo briſk, and the dealers well ſatisfied with the prices they obtained.'

Letter from a Gentleman in Upper Annandale, 25th October.

'The crops have not been got in, throughout this diſtrict, without a conſiderable degree of expence, and ſome waſte. The harveſt was wet and tedious, and not a little corn has got ſome heat in the ſtacks. The floods have alſo damaged or carried away a portion of the meadow hay, and ſome *corn* and barley. When the grain was beginning to be in real danger of ſpoiling, a week of fine weather gave general relief; and, at preſent, all is got in; even the potatoes are ſafely houſed.

'Wheat is a good average crop, and oats alſo. Barley was ſown in ſmall extent; but the little that we have is good. Hay is a defective crop. Potatoes are in great quantity, and of very fine quality. Turnips, in general, have a decent appearance; and the little flax that was ſown is good. The paſtures are at this moment excellent, both on the hills and valleys.

'The prices of victual roſe for a ſhort time about the beginning of this month, but have again ſubſided. Oat-meal ſold at 2s. 10d. per ſtone, but is now at 2s. 6d. Barley is at 5s. per Wincheſter buſhel, which is nearly 30s. per Lothian boll. Hay of ſown graſſes

at

at 1s. per ſtone. Sheep and cattle have fallen in price; but young beaſts and kyloes for winter ſtocking, are coming into demand.

'All the ſheep farms are now ſtocking with Cheviot ewes; the heath or black-faced ſheep not paying equal to the advanced rents. Better accommodations to the tenantry are alſo given by the landholders; and more attention is beſtowed on ſheep farms by all concerned. Plantations for ſhelter, and meadows for hay, are ſtill much wanted.'

Wigtounſhire Quarterly Report.

HARVEST is now over in this diſtrict; and if a judgment may be formed from appearances, the crop is at leaſt equal to an average one, though apprehenſions are entertained that the quality of the grain will be found rather under a medium. Little early thraſhing is done at any time here, fodder being an important article, and, of courſe, huſbanded in the beginning of the ſeaſon, leſt a backward ſpring be accompanied with ſcarcity. Grain markets are therefore hardly opened; but prices are expected ſomewhat to exceed thoſe of laſt year.

Potatoes are ſaid to be a productive crop, and turnips are tolerable.

The cattle trade is going on, though prices have ſuſtained a conſiderable reduction; and little hope ſeems to be entertained of any favourable alteration ſoon. There is ſome talk of a ſcarcity of fodder in England, which, if real, muſt ſlacken the demand for ſtock.

An alteration has likewiſe taken place in horſe markets. Latterly, the demand ſeems to have declined conſiderably. This was particularly conſpicuous in the reſult of two new fairs held in the royal burgh of Stranraer; the one at Midſummer laſt, and the other at Michaelmas. A number of dealers attended the firſt, and bought, with avidity, at high prices. At the ſecond, the ſhow was more conſiderable; but buyers were leſs numerous, and much ſhyer in their offers. The next Stranraer horſe fair will be held at New-year's-day, when it may be expected things will have again returned to a proper level.

Inſtitutions of this kind are highly advantageous to the country, as they promote buſineſs, and tend to prevent impoſition, by making an open diſplay of ſupply and demand, though ſome time muſt generally elapſe before they receive a ſufficient degree of confidence from the people; ſo ſhackled are mankind by prejudice and cuſtom, and ſo much diſpoſed to apprehend the effects of dangerous or unneceſſary innovation, from what is only meant as ſimple and inoffenſive improvement. ——*25th Oct.*

Mid-Lothian Quarterly Report.

THE parching cold weather, during the month of June, and two firſt weeks of July, rendered the ſpring corns both ſhort and thin; but the ſubſequent rains gave hope that theſe defects would be made up, ſhould the weather prove moderate afterwards. Unfortunately this was not the caſe; for, after the ground had been completely drenched with rain, the moſt terrible thunder ſtorm took place on the 9th of Auguſt that was ever remembered. In ſome parts of the county, it was a deluge of rain—in others hail; but, in a certain portion of it, ice literally poured from the clouds with terrible violence.

Upon

Upon inſpecting theſe icicles, they were evidently compoſed of hail-ſtones, that had been congealed in the cold regions of the air, of various ſhapes and ſizes. Many of them were from one to two inches in length, and more than half that in thickneſs. Some of them were pointed, others barbed, and ſome globular; and ſo hard were they, that to the windward of houſes or high walls, where they met with reſiſtance, and fell in heaps, it took five or ſix hours to diſſolve them, although the thermometer ſtood above 60.

The effects of ſuch a thunder ſtorm upon the growing corns may well be conceived. By that time, the early ſpecies of oats were full, and well advanced to maturity. This, together with their native friable quality, rendered them an eaſy prey to ſuch a ſhock; and the damage done to them was correſpondent.

In no caſe within the ſtream where the ice fell, was there leſs perhaps than a boll an acre beat out, beſides other injuries done; but in many others three, four and five bolls an acre were common; and in a few inſtances, the ſickle was never applied, but the remnant of the crop was mowed for domeſtic animals.

Barley, although not ſo eaſily ſhaken, did not eſcape; the ſtalks were cut over, or beat down. The pods of peas, ſtems of potatoes, and leaves of turnips and cabbages were lacerated. The extent of country over which theſe ravages took place, was not very great, being about five miles in length, and one in breadth, and fortunately a full half of this extent was not in crop. The injury, therefore, will be more felt by individuals than the community.

The other parts of the county which did not ſuffer by ice or hail, did not eſcape the injury conſequent to an exceſs of rain. Aftergrowth (the bane of good grain) is too common. This is worſe than the diviſion of an inheritance; for this ſpurious growth, while it robs the mother plants of their nouriſhment, yields nothing in return. In general, both oats and barley are defective. The ſtraw is too ſoft, has little bulk, and is deficient in quantity as well as quality. Indeed, oats are perhaps more ſo than has been remembered, unleſs in the memorable years of 1799 and 1800.

Wheat has ſtood out beſt all along, and may be rated at a fair average crop. Beans and peas are very various; while ſome fields are pretty good, others are very inferior, and ſome are *fired*. Potatoes turn up not ſo plentiful as in common ſeaſons. Turnips upon dry ſoils have improved greatly of late, but are ſtill ſhort of their ordinary ſize; upon heavy-bottomed ſoils, they are done with well-doing, being ſtunted and yellow.

The firſt week of autumn was wet and *hinderſome;* but, upon the whole, harveſt has been tolerably good; and the crop has been ſecured in a healthy ſtate, even in the higheſt diſtricts of the county, where it is ſaid every thing was brought to maturity, and is leſs deficient than in more favourable ſituations.

From the foregoing account of the weather, it will evidently appear, that

that thoſe fields under ſummer fallow were in no good plight, and that little was done before the commencement of harveſt in carting out dung, and preparing them for wheat; indeed that operation is ſcarcely yet over; and, this day, it is an inceſſant rain from the eaſt, which has rendered the ground as wet as if it were the depth of winter; ſo that it is doubtful when, and in what condition, wheat-ſeed will be brought to a cloſe.——*Oct.* 27.

Roſsſhire Quarterly Report.

It may with ſafety be aſſerted, that there never was a finer harveſt in the memory of man, than what has been in Roſsſhire this year, which admitted the crop to be ſtacked in the higheſt condition. The produce exceeds that of an average; and the quality, on the whole, will be found good. To go into particulars. Wheat is of fair, middling quality, and will aſſuredly exceed an average crop in quantity. Barley was of abundant growth, and the quality appears good. Oats are the moſt inferior crop; and nothing can be ſaid of their mealing, as very few have yet been ſent to the mill. The peas crop bulks well; and, from the fine dry harveſt, may be expected to yield an average produce. Some inquiries are making by merchants and agents after grain; but, as yet, no ſales of conſequence have taken place. As a proof of the high condition of corn here, a farmer in the neighbourhood of Cromarty ſhipped 100 quarters of new oats for London in the month of September (as hard and dry as they generally are in May), which was remarkably early for this northern ſituation; and indeed the crop is in general ſo well got in, that it may be ſhipped with ſafety ſo ſoon as thraſhed.

Turnips, where the land was well prepared, and the crop afterwards properly managed, are good. At Beauly market on the 22d and 23d current, there was a briſk demand for cattle. Prices, however, were low. Good ſtots for wintering brought little more than 7s. per Dutch ſtone ſinking the offal; but inferior ſorts were under that price.

A conſiderable quantity of wheat has been ſown in excellent order; and the weather ſtill continuing good, bids fair for a favourable concluſion to that important buſineſs.——*October 25th.*

Fifeſhire Quarterly Report.

The harveſt, which began in many places of the county about 20th Auguſt, concluded generally before October. The weather, on the whole, was very favourable, and the crop generally got into the ſtack-yards in good condition; but thoſe who were in too great haſte to accompliſh this, have had a good deal of trouble to prevent heating. The ſtraw is not ſo abundant this year as the laſt, which makes hay ſell better. This article is now 10d. per ſtone. Peas and beans cannot, in general, be reckoned above half a crop, as the ſtalks withered before the pods were half filled, though, at one time of the ſeaſon, they had a promiſing appearance. Oats had many greens, and were a thin crop; and ſuch as have been milled, are found much inferior to laſt year's in produce; at leaſt 2 pecks per boll. Barley is generally a good crop, and of good quality, but ſhort in ſtraw. Wheat equal to an average, and plenty of ſtraw.

ſtraw. Potatoes univerſally a very fine crop, both in quantity and quality.

As to turnips, few fields of theſe exceed half a crop; the early ſown by far the beſt. Flax in general a moderate crop. The market for oats and barley is briſk. The price of barley—Old 30s.; New from 27s. to 28s.; Oat meal 24s. per boll. Little New Wheat yet fit for the market.

The county is rather overſtocked with cattle: for although the demand has been conſiderable, the number ſtill on hand is great, and prices full 40s. per head under former years. Many graziers have ſold at prime coſt, and have not a penny to pay the graſs rents ſaved from the trade, which it is probable will lower graſs parks next ſeaſon.—— *October 27th.*

Inverneſſhire Quarterly Report.

A FEW weeks after the date of laſt report, the weather took a favourable turn, which cauſed an improvement of the crop not at that time expected. Harveſt became general in the firſt week of September; ſince which period little or no rain has fallen; and a more favourable ſeaſon for cutting and carrying the crop was ſeldom experienced. Some new barley has been already ſold to the diſtillers at 28s. or 32s. per boll; but, as yet, neither wheat nor oats have been delivered at a fixed price. The butcher market is well ſupplied with beef and mutton, which articles are ſold at 4d. and 6d. per lib. Turnips in general are an abundant crop. More than the uſual ſtock of cattle remains in the country. Thoſe lately marketed being ſold at prices conſiderably reduced.—— *October 27.*

Perthſhire Quarterly Report.

HARVEST was finiſhed in this diſtrict with uncommon deſpatch. Very high wages being given to reapers, an unuſual number of hands found their intereſt in coming to the field. The weather, with the exception of ſome moiſt days in the beginning, was fine; and even the rains were ſo light over moſt part of the county, as not to ſoak the ſheaf thoroughly; ſo that in an hour or two after the return of fair weather, every operation could go on. The high rate of harveſt labour this ſeaſon, has occaſioned the more general adoption of mowing, or cutting corn by the ſcythe. I have often endeavoured, in vain, to account for this mode being ſo little practiſed. It anſwers extremely well, unleſs the crop is very cloſely lodged, or extraordinarily intertwined at top. It returns much more than the expence of reaping, in the extra produce of fodder; and it gives the farmer a complete command of his harveſt work, with a ſmall aſſiſtance to his ordinary ſervants. A very ſimple appendage to the graſs ſcythe is all that is neceſſary. This conſiſts in a rod of iron, not ſo thick as one's little finger, one end of which is driven into the end of the ſned, or ſcythe-handle; from which it projects in a ſtraight line ſix inches, and is then rounded or bent back, till it returns over the ſned twelve inches, when the other end is driven into the wood, ſo as its plane is perpendicular to the hori-

zon, when the ſcythe is cutting. This addition, ſo ſimple and cheap, that any ſmith can make it in ten minutes, fits the ſcythe to do the work with inconceivable neatneſs and expedition, and certainly will come into general uſe.

The wheat crop is uncommonly bulky; and even after making abatement for a more than an ordinary degree of ſmut and lodging, will rate conſiderably above an average one. The barley crop will not come up to that ſtandard, excepting perhaps on deep ſoils, and where the crop was late. Oats and beans are ſtill more deficient in bulk; and both have this year been much hurt by that ſpecies of inſect, termed *coccus* by naturaliſts, which did ſo much injury to the oat crop in 1800. The ſame effect, which followed then, is already felt, viz. a great deficiency at the mill, both in the quantity and quality of the meal produced. Oat meal is 1s. 6d. per peck in retail; wheat 38s. to 40s. per boll; and barley 28s. Our Highland ſheep have not attained their uſual condition at this ſeaſon, although it is commonly ſuppoſed that dry weather ſuits that kind of ſtock beſt. Mutton ſells in retail at 5½d. per lib. Turnips have not come to maturity, in many places. Though there is a profuſion of leaves, there is a deficiency in the ſize of bulbs; and as the bulk of hay and edible ſtraw is much leſs than uſual, conſiderable diſtreſs muſt inevitably have followed the ſo much apprehended ſtagnation in the cattle trade, had it taken place. Potatoes are a very weighty crop every where, and have been taken out of the ground in fine order. The dry weather, too, has enabled the farmer to get his wheat ſeed into the ground, in a ſtate entirely to his liking.

The ſurvey of the Lochearn canal is now completed, under the direction of Mr Rennie. The great object in forming this canal, is to facilitate the conveyance of coal, by means of lighters, from coaſting veſſels in the Tay, for burning the limeſtone, which is found of an excellent quality, and in great plenty, on the ſide of Lochearn, and for the application of which, the ſoil of the ſurrounding country is particularly grateful. At preſent it is brought in boats to the eaſt end of the lake, where part is burnt, and the remainder carted through the country, in ſeveral directions, moſt of it down Strathearn, even to the eaſtward of Crieff, a diſtance of twenty miles; and in every caſe it is burnt with coal, carted from Achinbowie or Bannockburn, four or five miles ſouth of Stirling, a diſtance of from twenty-five to thirty miles. Could coal be procured in this quarter on any thing like nearly moderate terms, the benefit, not only to the adjacent country below, but to the diſtrict of Breadalbane on the north, would be incalculable. Beſides, in the event of water communication being procured into Lochearn, there are lead mines in ſeveral places which would be opened, and the working of the one at Tyndrum extended. Valuable ſlate quarries would alſo be wrought, which at preſent cannot be advantageouſly done, on account of their inacceſſible ſituation. Oak bark, wool, and other like articles, which are ſent by land-carriage to Perth or Stirling, could be brought down, at a cheap rate, in the retour boats. To all this may be

be added the conveyance upwards of groceries, iron, flax-ſeed, coals for domeſtic uſe, and other articles of that nature; a trade, which may be expected to extend, as the country becomes more populous and opulent. This canal will enjoy the ſingular and important advantage of never being in want of water, however extenſive its trade may become, or however dry the ſeaſon may be; and a mill-ſeat may be obtained at every lock, without impeding the buſineſs of the canal in the ſmalleſt degree; a circumſtance which may become of great advantage to the printfields and bleachfields through which it paſſes, as they are at preſent much incommoded in dry weather. It is likewiſe found, that by lowering the ſurface of Lochearn four or five feet, 200 acres of meadow may be gained; an important conſideration any where, but more eſpecially in a Highland country. Another important agricultural improvement might have been obtained, by draining a moſs of ſome hundred acres in extent, which lies in the proper line of the canal, ſix or eight miles weſt of Perth, and which, by that means, would have been rendered of great value, either for cultivation, or a turbary. As none of this moſs is of the flow kind, no extra expence would have been incurred; but, its proprietors not chuſing to countenance the execution of the canal, this has not been attended to. The Earl of Breadalbane takes the lead in this undertaking, as being by far the moſt intereſted of any in its completion; and it is fortunate that his opulence enables him to carry it through, if neceſſary, without aſſiſtance from any other quarter. The extent of inland navigation, which by this means will be opened, is not leſs than forty miles. The expence cannot as yet, be preciſely aſcertained; but it is expected to amount to at leaſt one hundred thouſand pounds, if the canal is five and a half feet deep, and the lock-gates twenty feet wide. The ſurface of Lochearn is 310 feet above flood-mark in the Tay; ſo that from 30 to 35 locks will be neceſſary; but, till Mr Rennie's ſanction is obtained, the minutiæ cannot be gone into.—*October* 27.

Letter from Glaſgow, 28th October.

'Our harveſt is now completed, and the grain, conſidering the deal of wet weather which we experienced, has been ſtacked in tolerable good condition. The crop, upon the whole, with reſpect to quantity, is at leaſt an average one; but in regard to quality, it is deficient.

'For ſome time previous to Saturday laſt, the weather being favourable, a conſiderable quantity of wheat was got ſown. On that day, however, it rained almoſt inceſſantly; ſo did it yeſterday, and it ſtill continues. A ſtop, conſequently, for ſome time will be put to this work.

'The importation of foreign grain into Clyde has been very inconſiderable this ſeaſon; but from Liverpool we have had an ample ſupply of old wheat, not leſs than 20,000 bolls having arrived from thence within a month or ſix weeks back. This, in addition to a few cargoes ſtill expected from America, will make a tolerable ſtock for the winter. To the ſouth of Scotland, and to Ireland, as uſual

we look for a ſupply of oats; and for barley and beans to the north Scotland, Eaſt-Lothian, and England. We are of opinion, that theſe ſorts of grain will be high for ſome time, as, from every account, the crop has been ſhort. Annexed you have a ſtate of our markets.

'State of Glaſgow Markets, Oct. 28th.

Dantzic Wheat -	42s. to 46s.	per boll Linlithgowſhire meaſure.
Foreign Red do. -	38s.—40s.	
Scotch do. (Old) -	40s.—45s.	
Do. do. (New) -	30s.—36s.	
Engliſh do. -	42s.—45s.	
American do. -	42s.—44s.	do. of 240 lib.
Iriſh do. -	30s.—38s.	
Iriſh Mealing Oats	22s. 6d.—23s. 6d.	do. of 264 lib.
Do. Inferior -	20s.—22s.	do. Renfrewſhire meaſure.
Scotch Potato -	25s.—26s.	
Do. Small -	20s.—22s.	
Engliſh Potato -	27s.—00s.	do. Stirlingſhire do.
Scotch Barley -	30s.—34s.	do. do. do.
Do. Beans -	23s.—25s.	do. do. do.
Do. Oat-Meal -	23s.—24s.	do. of 140 lib.

Morayſhire Quarterly Report.

In this county we had excellent harveſt weather, and the crop is all ſecured in the beſt poſſible condition; autumn labour goes rapidly forward. Wheat, barley, peas, and beans are good and abundant. Oats deficient in quantity and quality; and although the bulk of fodder is perhaps one fourth under laſt year's produce, the quantity of grain, taking all ſorts into account, may be equal; while the quality, oats excepted, is much ſuperior.

No prices are yet fixed; nor will our farmers ſell before the middle of December, whatever offers are made them.

Potatoes and Turnips are both good; there has lately been ſome ſtir in the cattle market, although at prices by which graſs rents are ſunk.

Land continues to advance; ſo do ſervants' wages, and every article wanted by the farmer. Improvement, both in the culture of the ſoil and management of cattle, are better underſtood; people more enlightened, active, and induſtrious; but as farms in general are ſmall, the fields without ſhelter or encloſure, and ſome in want of draining, much remains to be done, to add to the value of the ſoil and the proſperity of its occupier; and with the recent riſe of rents, it is yet to be aſcertained how far all theſe are not neceſſary to inſure both the one and other.——*Oct.* 28.

Eaſt-Lothian Quarterly Report.

During the autumn quarter, many circumſtances occurred of an unfavourable nature to agricultural operations. The weather, which, at the concluſion of the preceding quarter, was wet and unſettled, did not mend through the preſent one, but continued variable and unequal to this date. Hence, the ſummer fallows in general were imperfectly cleaned,

cleaned, the ſeed proceſs of wheat retarded, and field work of every kind obſtructed and put behind. The carrying on of harveſt work was alſo a teaſing buſineſs. At one time, hands, in ſufficient number, could not be got for cutting down the crop; and, of courſe, it became neceſſary in many places to ſtop all other work, and give a preference to that which more particularly was the buſineſs of the ſeaſon. Here it may be remarked, that the preſent mode of cropping (a very good one in other reſpects) threatens to occaſion a conſtant deficiency of harveſt people and high wages, becauſe the greateſt part of the culmiferous grains, now ſown, ripen or come to maturity nearly at the ſame period. Potato oats, in general caſes, are ready for the ſickle much about the ſame time with winter wheat; and this laſt mentioned grain being ſown extenſively, a hurry and buſtle inevitably happens when theſe grains are to be harveſted. Not ſo the caſe formerly. The Poland and Frieſland oats were ready for cutting eight or ten days before wheat: this laſt grain was not then cultivated on a large ſcale; and a great proportion of the oats being of the Angus and Blainſlie varieties, a kind of regular ſequence occurred in the carryiug on of harveſt work; whereas, according to the preſent ſyſtem of cropping, a part of the grain muſt either be cut too early, or the remainder ſtand expoſed to accidents, till hands can be got for cutting it down. Taking the paſt harveſt all in all, it cannot be characterized as a bad one; for though much rain fell in the courſe of it, this evil was commonly compenſated by a ſucceſſion of briſk winds; and, with a few exceptions, the crop was ſecured in good order and condition.

From trials that have been made, a tolerably correct eſtimate may be formed of the crop. In bulk, it is at leaſt one third ſhort of laſt year's; though, as generally happens, the deficiency of grain will not be ſo great. The drought which prevailed till the middle of July ſtunted the growth almoſt in every caſe; and the rains which afterwards were received did not materially ſerve the future progreſs of the crop, unleſs in thoſe inſtances where it was late, conſequently in a ſtate where benefit could be gained. Viewing the crop of this diſtrict as a whole, wheat may be conſidered as fifteen per cent. deficient in quantity, when compared with that of laſt year; alſo, as inferior in quality. Oats likewiſe may be conſidered in the ſame light, and as yielding nearly two pecks of meal leſs from a boll of grain than was then obtained. Many of the early varieties ſhedded in the handling; and where it was neceſſary to open them out, a ſevere loſs was ſuſtained. Barley is unequal, but approximates to an average; and beans and peas, though in ſome caſes of conſiderable bulk, appear to be very barren. None are yet thraſhed; therefore, the extent of the deficiency cannot be aſcertained.

Turnips are a variable crop. On light, ſoils, properly cultivated, the crop is good; but on ſoils of a different deſcription, it is worth very little. The ſame remark applies to potatoes. Several turnip fields, owing to the ſcarcity of that root, have been let at high

rents; and there is cauſe to believe that the fat ſtock, to be furniſhed in the ſpring from this diſtrict, will fall much ſhort of the uſual numbers.

The ſowing of wheat has gone irregularly forward, and much has been put into the ground under unfavourable circumſtances. Indeed, the heavy ſoils of this diſtrict have not been in a dry condition ſince the middle of July; ſeldom in a ſtate for receiving the plough with advantage; and were injured ſeverely by the carting of the manure. On theſe accounts, a good many fields intended for wheat remain unſown, though, it is to be hoped, opportunity will ſtill be afforded for completing the proceſs. It is hardly to be expected, that ſeed-work can now to be performed in the moſt perfect manner; but it has been remarked, that a defect of this kind operates more againſt the future condition of the land, than againſt the ſucceſs of the firſt crop. Still it is an evil to be lamented, though, in a ſeaſon like the preſent, not to be avoided.

Markets for grain have been good through the quarter, and the demand has regularly kept pace with the quantities preſented. From the humidity of the weather, there is not much in ſufficient condition for ſhipping; but the ready money market at Haddington has taken off nearly the whole that has been thraſhed. Perhaps not half ſo much of this crop has been thraſhed and marketed, as occurred laſt year at this time with the preceding one.

A good many perſons followed the practice introduced laſt ſummer, of feeding cattle in the yard on cut clover; and, in particular, one farmer fed fifty ſtots in that way. Without inſiſting on its advantages, ſeeing that they were fully detailed in a former Number, it may be ſtated, that the quantity and quality of dung thereby made, are matters of the higheſt importance to every corn farmer. The want of manure is the bane of general farming; therefore, every endeavour ought to be uſed for increaſing it; and home-feeding is a reſource within the reach of every one, eſpecially thoſe who are well provided with ſtraw for littering the cattle.

Various thunder ſtorms occurred in the beginning of the quarter; particularly, one on the 9th of Auguſt, of greater ſeverity and duration than remembered in this diſtrict. The ſtorm commenced at two o'clock, P. M., and was not over till nine o'clock in the evening. The preceding day was exceedingly warm, and did not ſhew a ſingle cloud. Through the night the wind got to the ſouth-eaſt, and blowed very irregularly. A few hours before the thunder commenced, an alarming confuſion appeared in the ſkies, prognoſticating a dreadful tempeſt of one kind or other. A ſurpriſing whirlwind opened the ſcene; the moſt vivid flaſhes of lightning immediately followed, accompanied with loud peals of thunder, which ſeemed to burſt from all quarters; and the whole concluded with a torrent of rain, which deluged the fields, lodged the corns, and ſtopped every kind of field-work for ſeveral days.——*Oct.* 30.

Account

Account of WHEAT *sold in* HADDINGTON MARKET, for ready Money, *from November 1ſt*, 1805, *to October 24th*, 1806; *with the Weekly, Monthly, and Annual Average Price thereof; obligingly furniſhed by* Mr TODRICK, *Clerk of the Market.*

Date.	*Quantity.*	*Value.*			*Weekly Average.*			*Monthly Average.*		
1805.	BOLLS.	*L.*	*s.*	*d.*	*L.*	*s.*	*d.*	*L.*	*s.*	*d.*
Nov. 1.	859	1523	1	0	1	15	$5\frac{6}{12}$			
8.	1284	2178	15	0	1	13	$11\frac{8}{12}$			
15.	735	1216	5	3	1	13	$1\frac{1}{12}$			
22.	867	1365	12	0	1	11	6			
29.	839	1253	6	0	1	9	$10\frac{6}{12}$			
	4584	7536	19	3				1	12	$10\frac{7}{12}$
Dec. 6.	581	813	2	0	1	10	$7\frac{6}{12}$			
13.	648	1041	11	0	1	12	$1\frac{9}{12}$			
20.	815	1302	9	6	1	11	$11\frac{6}{12}$			
27.	674	1026	6	0	1	10	$5\frac{5}{12}$			
	2668	4183	8	6				1	11	$4\frac{1}{12}$
1806.										
Jan. 3.	495	771	8	6	1	11	2			
10.	664	1025	10	0	1	10	$10\frac{7}{12}$			
17.	588	916	5	0	1	11	$1\frac{11}{12}$			
24.	439	696	13	0	1	11	$8\frac{10}{12}$			
31.	560	879	18	0	1	11	$5\frac{1}{12}$			
	2746	4289	14	6				1	11	$2\frac{11}{12}$
Feb. 7.	903	1403	17	6	1	11	$1\frac{1}{12}$			
14.	778	1226	12	0	1	11	$6\frac{4}{12}$			
21.	485	784	13	6	1	12	$4\frac{3}{12}$			
28.	500	824	5	0	1	12	$11\frac{1}{12}$			
	2666	4239	8	0				1	11	$9\frac{7}{12}$
Mar. 7.	644	1027	13	9	1	11	$10\frac{11}{12}$			
14.	418	656	15	6	1	11	$5\frac{1}{12}$			
21.	545	865	19	6	1	11	$9\frac{4}{12}$			
28.	431	691	1	0	1	12	1			
	2038	3241	9	9				1	11	$9\frac{8}{12}$

Date. 1806.	*Quantity.* BOLLS.	*Value.* L.	s.	d.	*Weekly Average.* L.	s.	d.	*Monthly Average.* L.	s.	d.
Apr. 4.	460	762	15	6	1	13	$1\frac{1}{12}$			
11.	218	422	12	6	1	19	$9\frac{3}{12}$			
18.	491	1012	17	0	2	1	3			
25.	498	949	16	0	1	18	$1\frac{8}{12}$			
	1667	3148	1	0				1	17	$9\frac{3}{12}$
May 2.	326	698	7	6	2	2	$10\frac{1}{12}$			
9.	569	1101	18	0	1	18	$8\frac{9}{12}$			
16.	540	1017	13	6	1	17	$8\frac{1}{12}$			
23.	568	1106	6	0	1	18	$11\frac{5}{12}$			
30.	583	1174	3	0	2	0	$3\frac{4}{12}$			
	2586	5098	8	0				1	19	$5\frac{9}{12}$
June 6.	470	958	6	6	2	0	$9\frac{4}{12}$			
13.	479	974	5	6	2	0	$8\frac{4}{12}$			
20.	391	809	4	0	2	1	$4\frac{8}{12}$			
27.	469	962	11	6	2	1	$0\frac{7}{12}$			
	1809	3704	7	6				2	0	11
July 4.	495	1003	15	6	2	0	$6\frac{8}{12}$			
11.	622	1306	18	0	2	2	$0\frac{3}{12}$			
18.	481	999	8	9	2	1	$6\frac{8}{12}$			
25.	448	927	17	3	2	1	$4\frac{10}{12}$			
	2046	4237	19	6				2	1	$5\frac{1}{12}$
Aug. 1.	553	1127	2	6	2	0	9			
8.	632	1239	15	6	1	19	$2\frac{5}{12}$			
15.	434	842	2	6	1	18	5			
22.	428	870	0	0	2	0	$7\frac{11}{12}$			
29.	383	862	14	6	2	5	$0\frac{7}{12}$			
	2430	4041	15	0				2	0	8
Sept. 5.	402	896	12	0	2	4	$7\frac{3}{12}$			
12.	669	1360	9	6	2	0	8			
19.	685	1358	2	6	1	19	$7\frac{10}{12}$			
26.	763	1503	5	0	1	19	$5\frac{5}{12}$			
	2519	5118	9	0				2	0	$7\frac{7}{12}$

Date.	*Quantity.*	*Value.*			*Weekly Average.*			*Monthly Average.*		
1805.	BOLLS.	*L.*	*s.*	*d.*	*L.*	*s.*	*d.*	*L.*	*s.*	*d.*
Oct. 3.	768	1391	8	0	1	16	$2\frac{4}{12}$			
10.	838	1488	11	0	1	15	$6\frac{3}{12}$			
17.	506	996	5	0	1	19	$4\frac{6}{12}$			
24.	609	1175	0	6	1	18	7			
	2721	5051	4	6				1	17	$2\frac{7}{12}$

ABSTRACT.

Dates.	*Monthly Quantity.*	*Monthly Value.*			*Monthly Average.*			*Annual Average.*		
1805.	BOLLS.	L.	s.	d.	L.	s.	d.	L.	s.	d.
November	4584	7536	19	3	1	12	$10\frac{7}{12}$			
December	2668	4183	8	6	1	11	$4\frac{3}{12}$			
1806.										
January	2746	4289	14	6	1	11	$2\frac{11}{12}$			
February	2666	4239	8	0	1	11	$9\frac{7}{12}$			
March	2038	3241	9	9	1	11	$9\frac{8}{12}$			
April	1667	3148	1	0	1	17	$9\frac{2}{12}$			
May	2586	5098	8	0	1	19	$5\frac{2}{12}$			
June	1809	3704	7	6	2	0	11			
July	2046	4237	19	6	2	1	$5\frac{1}{12}$			
August	2430	4941	15	0	2	0	8			
September	2519	5118	9	0	2	0	$7\frac{7}{12}$			
October	2721	5051	4	6	1	17	$2\frac{7}{12}$			
	30480	54791	4	6				1	15	$11\frac{1}{12}$

N. B.—The quantity ſold laſt ſeaſon, in the ſame months, was 27,342 bolls.

The average price was L. 2 2 $5\frac{1}{12}$

The total produce of ſales L. 58,037 16 6

Hence it appears, that though 3038 bolls were marketed in 1806 above what was marketed in 1805, yet that the value of ſales in the paſt exceeded thoſe of the current year in no leſs a ſum than 3246l. 12s. A number of inferences occur from this comparative ſtatement, but we have not room to offer them.

ENG-

ENGLAND.

The following Roup-roll of Stock, belonging to Mr Culley, sold, by Auction, at East-Field, near Berwick, on Wednesday, the 8th of October, taken on the spot, has been obligingly communicated to us.

Lot

1. 5 Ewes, 2l. 15s. Mr Grey, Heaton.
2. 5 Ditto, 2l. 10s. Ditto.
3. 5 Ditto, 2l. 18s. Mr Hope.
4. 5 Ditto, 2l. 17s. Ditto.
5. 5 Ditto, 3l. Anthony Gregson, Esq.
6. 5 Ditto, 3l 15s. Col. Elliot for Lord Hyndford.
7. 5 Ditto, 3l. 16s. Mr Smith, Hayfarm.
8. 5 Ditto, 4l. 7s Ra. Compton, Esq.
9. 5 Ditto, 4l. 4s. Mr Hope.
10. 5 Ditto, 5l. 11s. Col. Elliot for Lord Hyndford.
11. 5 Ditto, 6l. 1s. Simon Temple, Esq.
12. 5 Ditto, 5l. 10s. Mr Brodie, Scougall.
13. 5 Ditto, 4l. 11s. Mr Kerr, Whitekirk.
14. 5 Ditto, 5l. 14s. John Conington, Esq. Lincolnshire.
15. 5 Ditto, 5l. 6s. Ditto.
16. 5 Ditto, 6l 10s. James Hogarth, Esq.
17. 5 Ditto, 4l. 11s. Mr Hope.
18. 5 Ditto, 5l 2s. Col. Elliot for Lord Hyndford.
19. 5 Ditto, 5l. 10s. Mr Richard Robson.
20. 5 Ditto, 6l. Simon Temple, Esq.
21. 5 Ditto, 6l. 13s. Col. Elliot for Lord Hyndford.
22. 5 Ditto, 7l. 12s. Simon Temple, Esq.
23. 5 Ditto, 5l. 11s. Mr Kerr, Whitekirk.
24. 5 Ditto, 8l. Mr Brodie, Scougall.
25. 5 Ditto, 5l. Mr Robson, Fawden.
26. 5 Ditto, 6l. 10s. Mr Brodie, Scougall.
27. 5 Ditto, 5l. 13s. Sir Jas. Stewart, Bart.
28. 5 Ditto, 4l. 14s. Anty. Gregson, Esq.
29. 5 Ditto, 6l. 16s. John Conington, Esq. Lincolnshire.
30. 5 Ditto, 4l. 7s. Ra. Compton, Esq.
31. 5 Ditto, 4l. 5s. Anty. Gregson, Esq.
32. 5 Ditto, 4l. 5s. Mr Brodie, Ormston.
33. 5 Ditto, 5l. 15s. Mr Hope.
34. 5 Ditto, 5l. 11s. F. Trappes, Esq. Yorkshire.
35. 5 Ditto, 4l. 15s. Mr Robson, Fawden.
36. 5 Ditto, 5l. Henry Morton, Esq.
37. 5 Ditto, 4l 18s. Col. Graham, Perthshire.
38. 5 Ditto, 4l. 8s. James Hogarth, Esq.
39. 5 Ditto, 4l. 8s. Col. Graham, Perthshire.
40. 5 Ditto, 8l. Simon Temple, Esq.
41. 5 Ditto, 6l. 11s. Mr Nelson, Chesterlee Street.
42. 5 Ditto, 5l. 7s. Mr Brodie, Scougall.

Lot

43. 5 Ewes, 4l. 16s. Ra. Compton, Esq.
44. 5 Ditto, 6l. Mr Brodie, Scougall.
45. 5 Ditto, 4l. 10s. Anty. Gregson, Esq.
46. 5 Ditto, 6l. 1s Mr Robson, Fawden.
47. 5 Ditto, 5l. Henry Morton, Esq.
48. 5 Ditto, 6l. 17s. Mr Nelson, Chesterle-Street.
49. 5 Ditto, 4l. 3s. F. Trappes, Esq. Yorkshire.
50. 5 Ditto, 5l. 2s. Mr Richard Robson.
51. 5 Ditto, 4l. 3s. Ra. Compton, Esq.
52. 5 Ditto, 4l. 3s. Ditto.
53. 5 Ditto, 4l. 4s. F. Sitwell, Esq. M. P.
54. 5 Ditto, 4l. 7s. Mr Brodie, Scougall.
55. 5 Ditto, 4l. 5s. Mr Nelson, Chesterle-Street.
56. 5 Ditto, 5l. 9s. Ditto.
57. 5 Ditto, 4l. 6s. F. Sitwell, Esq. M. P.
58. 5 Ditto, 4l. 8s. Mr Smith, Hay-Farm.
59. 5 Gimmers, 6l. Mr Richard Robson.
60. 5 Ditto, 6l. 19s. Mr Dobson.
61. 5 Ditto, 4l. 11s. Anty. Gregson, Esq.
62. 5 Ditto, 4l 13s. Mr Smith, Berriagton.
63. 5 Ditto, 6l. 12s. Mr Kerr, Whitekirk.
64. 5 Ditto, 6l. 8s. John Conington, Esq. Lincolnshire.
65. 5 Ditto, 8l. 1s. Ra. Compton, Esq.
66. 5 Ditto, 7l. 10s. John Conington, Esq. Lincolnshire.
67. 5 Ditto, 6l. 2s. Mr Murray, Simprim Mains.
68. 5 Ditto, 8l. John Conington, Esq. Lincolnshire.
69. 5 Ditto, 6l. 7s. Mr Smith, Hay-Farm.
70. 5 Ditto, 7l. 4s. Anty. Gregson, Esq.
71. 5 Ditto, 5l. Ditto.
72. 5 Ditto, 7l. Mr Robson, Fawden.
73. 5 Ditto, 7l. Mr Brodie, Scougall.
74. 5 Ditto, 6l. 10s. Ditto.
75. 5 Ditto, 6l. 15s. Mr Roberton, Ladyrig.
76. 5 Ditto, 5l. 18s. Mr James Bell.
77. 5 Ditto, 6l. 7s. Mr Smith, Hay-Farm.
78. 5 Ditto, 5l. 16s. John Conington, Esq. Lincolnshire.
79. 5 Ditto, 5l. 18s. Mr Nelson, Chesterle-Street.
80. 5 Ditto, 4l. 15s. Mr Johnson Thompson.
81. 5 Ditto, 4l 12s. Mr Smith, Berrington.
82. 5 Ditto, 6l. Mr Smith, Hay-Farm.
83. 5 Ditto, 4l 6s. Anty. Gregson, Esq.
84. 5 Ditto, 4l. 9s. Ra. Compton, Esq.

Total, 420 Sheep.—Average Price, 5l. 7s. 3¼d. each.—Amount, 2,253l. 10s.

[We have been favoured with the following Letter from an eminent Corn-Factor in London to his friend in the country, which throws conſiderable light on a branch of the trade hitherto imperfectly comprehended by many people.]

'I AM very happy that you afford me an opportunity of explaining how ſeed-corn is always charged ſo much higher than the top prices ſtated by the factors and in the newſpapers.

'In the firſt place, there are always a few *ſuperfine* ſamples ſold for grinding, *above* the *higheſt* quotations, *which* are the rates which the farmers' corn fetches which comes up in the hoys from Kent and Eſſex, and denominated *runs*, from the circumſtance of being all ſo put into the hoy or barge, that, although ſhipped ſeparately, they cannot be taken out without *running* or mixing together. Theſe runs, from being almoſt always freſh, are eſteemed by the millers more than any other parcels that come to Mark-lane (except the *ſuperfine* ſamples I have juſt noticed), and yet they are generally a mixture of red and white wheats, and many *different* ſhades of quality, which renders them unfit for ſeed. When, therefore, a pure, unmixed ſample is wanted, it is known to be for ſowing; and, although not a bit better than many of the runs, the jobber or hoyman takes care to charge a very handſome addition to the market price, for pretended *extra* cleaning and quality, &c. &c. The factor, too, alleges the great extraordinary trouble and judgment neceſſary to procure ſeed-corn, and lays on a heavy charge of 6*d. per buſhel* commiſſion, although he is very glad to get 1*s. per quarter* of 8 buſhels on the other wheat he ſells and buys.

'In the late ſhipment for you, we have (as is the practice in the trade) included the commiſſion of 6d. per buſhel in the price, no doubt from the ſame *baſhfulneſs* which others ſhew at making ſuch a charge. I can, however, with truth aſſure you, that no factor courts orders for ſeed-corn, on account of its ſeemingly unwarranted extravagant coſt, and the ſuſpicions conſequent thereto. After having thus explained the ſubject, however, I hope my houſe will ſtand juſtified in your opinion for the account ſent.'

Letter from Norfolk, October 12.

'HARVEST being terminated, we are enabled, in a great degree, to aſcertain the ſtate of the ſeveral corn crops. Wheat may be eſtimated as a fair average crop, though of various qualities, and one or two pounds per buſhel lighter than laſt year. The growth of rye continues ſmall, but what was ſown is of good quality. Barley is a deficient crop, and certainly cannot be rated as above two thirds of laſt year's produce. The quality is alſo inferior; and as many farmers are cutting their ſtacks, we apprehend that much of it will be mou-burnt and damaged. Oats, in the uplands, are a good crop, and well got in, but, in the fens, deficient, the number of acres being unuſually ſmall. It will be difficult to get theſe, in any quantity, exceeding 35 or 36 lib. per buſhel in weight. Peas are a ſhort crop, but harveſted in excellent condition. Beans of little bulk, though conſiderably better podded than was expected. Very few tares were left for crop, the want of graſs in ſummer occaſioning them to be cut for the working ſtock. Rape-ſeed is well got; but as the price is by no

mean

means adequate to the expenſes of this crop, very little of it will be ſown for next ſeaſon.'

Letter from a Yorkſhire Farmer, October 20.

'Our crops of grain are not ſo bulky as laſt year; but wheat is of decent bulk, and fine in quality; I think, fully equal to the produce of laſt year. Barley and oats were light on the ground, and will not average more than three fourths of a crop. Beans improved much after the rains in July; and thoſe that were drilled and well cleaned, are full of corn; the broadcaſt very variable, according to ſoil and management; on ſtrong clays, and thin lands, full of weeds, and very ordinary; but deep loams, under good management, are very productive. They are now chiefly harveſted, but ſoft, which will keep them ſome time out of the market. Our white corn was well got in general; and wheat and barley comes to market in pretty good condition. Wheat from 8s. 6d. to 10s. 6d. per buſhel; Fine old, 11s. per do.; Barley, 5s. to 6s. per do.; Oats, 3s. 4d. to 4s. per do.; Beans, old, 5s. 9d. to 6s. 6d. per do. Our factors have a good deal of old wheat in their warehouſes, from Lincolnſhire, Norfolk, and Northumberland, ſome of it very ſtale, and almoſt unſaleable. Our turnips are good, where ſown on proper ſoils, and well cleaned and manured, particularly thoſe that are drilled on ridges with the Scotch or Northumberland drill; but this inſtrument is but partially uſed. Thoſe on light ſands, are full of weeds, and very ordinary; and the ſame remark applies to this root on every kind of land under improper management. Our ſummer fallows were got into good order by thoſe farmers who attended to their buſineſs, though the rains in July cauſed the ſmall weeds to ſtrike. The weather, ſince that time, has been favourable for latter dreſſings. Our ſeed wheat is now getting into the ground in good condition; we have had a run of dry weather, which prevented ploughing ſtrong clover ſtubbles; but the fine rain which fell on the 14th and 15th, has brought the ground into order for ploughing. Labourers' wages ſtill advance. Harveſt work full as high priced as with you, while our victuals and malt liquors are much more expenſive; in ſhort, reaping the grain is become a ſerious burden, and will amount, in many inſtances, to one tenth or one twelfth of the value of the crop. We begin to feel the advantage of thraſhing machines; were it not for them, the ſeparating the corn from the ſtraw would be a very heavy buſineſs. Our markets for cattle and ſheep are well ſupplied; the latter maintain their prices; but both fat and lean cattle are lower.'

Eſſex Quarterly Report.

The harveſt was pretty favourable, and the corn crops were houſed much quicker than uſual, owing to the ſmall quantity of ſtraw, the growth of which was checked by the dryneſs of the ſpring quarter. Wheats, it is hoped, will be as productive as laſt year, though not of that quality. Some of them were carried when damp, which of courſe, cauſes the grain to appear ſoft and cold.

Barley is a partial crop, and on light lands certainly defective. Beans were about half a crop, and peas much the ſame. The hops never looked finer, and the bines were well loaded with fruit; ſome ground produced

not

not leſs than 25 hundred weight per acre; this, however, was not general, for others did not yield more than three hundred weight. The beſt pockets were ſold as high as one ſhilling per pound. Pigs are fallen much in price, owing to the dearneſs of grain in compariſon of laſt year. Lean cattle, from the north and ſouth, have fetched high prices. Welch calves have ſold as high as ſeven guineas. Good horſes maintain their prices; and ſtock ſheep are conſiderably dearer than laſt year. There is plenty of Michaelmas feed, but the proviſion in the ſtraw yard this winter, muſt be ſcanty. Seed time has generally commenced: tares are moſtly up, and much manure has been carted on the young clovers, &c. during the laſt month's dry weather. Some heavy rains have lately fallen, which will cauſe the clover leas to be ploughed with advantage.——*Oct.* 22.

Lincolnſhire Quarterly Report.

The crop of this ſeaſon may, on the whole, be conſidered as yielding a fair average produce, though at leaſt one third leſs in bulk than that of the preceding one. Wheat is good, both in the high and low diſtricts. In the fens, oats which looked very backward in the early part of the ſeaſon, improved greatly before harveſt, and promiſe to be very productive; though, on the hills or wolds, they are much inferior, particularly thoſe of the potato variety, which we find not ſo productive as our old white ſort. Barley appears to be a tolerable crop; and, in ordinary ſituations, promiſes to yield a return ſomething like four quarters per acre.

The firſt part of ſummer being wet and cold, paſtures, of courſe, were late in growth, which occaſions a number of cattle to be only half fed. Turnips, in general, promiſe well, which is a lucky circumſtance, conſidering the quantity of ſtock on hand. No more of the common fen land is encloſed, than what the Commiſſioners ſold to defray the expence of drainage, &c.; but Wildmore fen, conſiſting of ten thouſand five hundred acres, will be undertaken this winter. The drainage of the whole is drawing to a concluſion; and, when finiſhed, will be the moſt complete and effectual one ever executed in Great Britain.

Poor rates keep increaſing very much, as alſo the value of labour. Tythes are high eſtimated, and looked after more ſharply than hitherto has been cuſtomary.——*Oct.* 23.

Northumberland Quarterly Report.

In the laſt quarter we have had frequent rains; but ſeldom of longer continuance than a day or two, and ſucceeded by a few days of breezy dry weather, which prevented the corn from being injured. In general, the crop has been ſecured in a good ſtate. The ſuſpicions that were entertained, of the wheat being injured by the wet weather in July, have in many places taken effect; not only in the ruſt or diſeaſed ſtate of the ſtraw, but alſo in part of the ear being defective, having no grain in them, while the remaining part is filled with good and perfect grains. Thoſe defective parts are probably owing to the farina being injured by the wet. The ſamples of this year's crop are very uneven; and the crop in this diſtrict below an average. Other kinds of grain, taken in the whole, are much about par. The turnip crops, upon fertile dry ſoils, are good; but upon moiſt-bottomed ſoils, and ſtrong loams, they were

were ſo ſtarved by the wetneſs, that they are very inferior. The ruta baga, in particular, appears to have ſuffered more from the wet on thoſe ſoils than the common turnip. The weather has been favourable for wheat ſowing upon the ſummer fallows. Some of theſe, from the repeated rains, have not been ſo well cleaned as could be wiſhed; but untoward ſeaſons will baffle the beſt cultivators. The ſheep markets have been nearly as good as laſt year. Ewes, about 18 lib. per quarter, ſold from 40l. to 42l. per ſcore. Mr George Culley of Eaſtfield, having to quit a farm next May, ſold 420 ewes of the Leiceſterſhire breed by auction, in lots of five each. Some lots ſold as high as 40l. a lot. The average of the whole 84 lots was 5l. 7s. 4d. per head. Our corn markets are advancing. The preſent prices are—Wheat from 8s. 6d. to 10s. 6d.; Barley, 4s. 9d. to 5s.; Oats, 3s. 4d. to 3s. 10d. per buſhel Wincheſter.——*Oct.* 24.

Letter from Wales, October 24.

'When I wrote you laſt, our harveſt was faſt approaching. The firſt week in Auguſt it became almoſt general in the Vale; and the wheat was moſtly got in good condition, there being at that time better than a fortnight of fine weather. We were not ſo fortunate with the other grains; for though we had no ſettled heavy rains, there was a mixture of all kinds of weather, which occaſioned them to be long in hand; and ſome barleys, where the encloſures were ſmall, loſt their colour, though I believe little of it ſprouted. Our crops are not bulky; and I do not think the quantity will be near equal to what it was in the two laſt years. Our millers ſpeak well of the quality of the wheat, it being dry and of great weight. Oats alſo are good in quality, and are the beſt crop with us. The barley was of two growths; of courſe yields a deal of light ſmall corn. That which is of good quality is advancing faſt in price. Wheat and oats keep nearly as they have been for the laſt ſix months, though ſome prime ſamples of ſeed-wheat went ſo high as 14s. and 14s. 6d. per Wincheſter buſhel. The general price of the mills is 30s. and 31s. for 168 pounds. The crops of beans and peas are well corned, though not of great bulk; but as I have not heard of any yet thraſhed, cannot ſay how they may yield. Turnips and potatoes are generally good; the former gains ground faſt in this part. My neighbour Mr Jenkins, who viſited you ſome time ago, has exceeded any in this part, for breadth of ground ſowed in drills, and hoed in your way; and the crop is good. Store cattle have hung on hand of late; and the demand does not ſeem to increaſe, but fat ones go off at good prices. Store pigs alſo ſell well. It has long been the practice here to *ſplea* the breeding ſows, when wanted to fatten. They are found by this means to fatten much ſooner, and with great eaſe; and they generally undergo that operation while the pigs ſuck. It is now become almoſt general to *ſplea* the cows alſo, when intended for fat; and though it is but of late years that the trial has been made, I am told there has not as yet been an inſtance of one that has not done well. The cutters ſay, there is leſs danger with an old cow, than with a young calf. When a cow wants the bull, and is in a field with others that are feeding, ſhe diſturbs the whole; whereas, by the above operation, ſhe is rendered quiet, and fattens ſooner than the reſt.'

Yorkſhire

Yorkſhire Quarterly Report.

THE harveſt of the preſent period has been tolerably proſperous. There has been ſcarcely an inſtance, during the ſeaſon, of more than four or five days in ſucceſſion, free from rain; yet the ſtate of weather immediately ſucceeding the rain, was ſuch, as to enable the farmer to ſtack his grain in moderate condition. Samples of wheat, of courſe, are not quite ſo dry as might be deſired. The crops of wheat, though generally free from mildew, are not bulky after beans; ſome after clover are uncommonly good: ſo that, on the whole, wheat may perhaps be a little above an average crop. Barley was light and thin on the ground; Oats and Beans fair crops. Beſt Wheat is ſold about 10s.; Barley 6s. 6d.; Oats 4s.; Beans 6s. 6d.; and Rye 6s. per buſhel of Wincheſter.

The product of fruit, particularly of apples, has been extremely partial: in ſome orchards there was abundance; in others little or none at all.

The ſummer-fallows have had a fair preparation. Turnips are good, and beſt fields ſold as high as 6l. per acre for ſheep. Thoſe on ſome limeſtone ſoils, which, from the injury done by the fly or ſlug, were reſown, are ſtill productive of feed, from the full ſupply of rains cauſing a vigorous autumnal growth. The after-graſs, or fog, which was extremely deficient in ſummer, has much improved of late, from the ſame cauſe; yet a want of herbage is complained of.

The young clovers and ſeeds have planted uncommonly well. Clover has ſeeded ill. Fat and lean cattle are lower than laſt year; but young wedder ſheep, in forward condition, for turnip wintering, have been bought at higher prices than uſual. Pigs are dear. Good horſes extremely ſcarce. Hay about 4l. per ton. Beef, Pork, Veal, and Mutton, about 6d. per lib. Butter 1s. 3d. Potatoes are plentiful, and cheap.

The wheat ſowing is far advanced, on clover leas and fallows; ſome of the beans are not yet off the ground. Seed-work has been well and ſeaſonably performed.

The Reporter is ſorry to remark, among too many of the landlords of this part of the country, a ſpirit of encroachment on the *property* of the farmers, by depriving them of *tenant-right*, i. e. that allowance to the offgoing tenant, for tillage, half tillage, &c. which has long had the ſanction of *cuſtom*, if not of law, more particularly ſince the introduction of the new or Flemiſh huſbandry. A ſpirit which, if prevalent, will prove deſtructive of Britiſh agriculture, and conſequently highly injurious to the welfare of the community at large.——*Oct.* 27.

Letter from the Eaſt Riding of Yorkſhire, October 27.

'The crops of grain in this diſtrict will moſt aſſuredly fall ſhort of laſt year's produce. Wheat will approach nearer to an equality in quantity than any other grain; and, being well got, and much freer of ſprouts than laſt year, the difference will not be great. Oats may be fairly ſtated at one ſixth ſhort; barley and beans even more, perhaps one fifth. The latter, all over this diſtrict, ripened prematurely, and conſequently are very ſmall, and much ſhrivelled. We had a good harveſt, although not without ſhowers of rain; yet grain of each deſcription is well got; and the weather continuing favourable for getting the wheat ſown, that operation goes on rapidly; it will be nearly concluded in another week, except where potatoes

tatoes have grown. The fallows, where due attention has been paid them, are in high tilth; where not ſo, the fault is in the farmer. Turnips are very variable. On rich ſand ſoils, well cultivated, the crop is good; upon Yorkſhire wolds and thin ſoils, worth but little. They are ſelling at 50s. to 95s. per acre to eat with ſheep. Potatoes turn out well where the curl has not been prevalent.'

Letter from London, October 27.

'THE general information collected from the neighbouring diſtricts, enables us to form an eſtimation of the late crop with ſome accuracy; and we do ourſelves the pleaſure of tranſmitting our ſentiments on theſe matters, truſting that they will be found tolerably correct, and of ſome uſe to your readers.

'A great deal of wheat was ſown laſt ſeaſon; and although we hear of many failing places, the produce, on the whole, will amount to what may be deemed a fair average crop. Barleys, in Suffolk and Norfolk, are aſcertained to be deficient. In ſome other counties, this grain has ſucceeded better; but, on the whole, we cannot reckon them above two thirds of a crop. Beans will prove tolerably good, both in quantity and quality. The opinion communicated on the eve of harveſt reſpecting peas, ſeems fully confirmed. They have doubtleſs failed very much in quantity; and the demand for conſumption having taken place, and government ſupplies being required at the ſame time, a very conſiderable advance is the reſult. In regard to oats, the fen diſtricts will furniſh a good ſupply; but in all the light ſoils, a want of rain in the early part of ſummer was felt ſeverely. Indeed, it is almoſt certain that oats, on the whole, will not exceed a fair crop.

Comparing the quality of grain produced this year, with that of the preceding one, we are inclined to think, that wheat will fall ſhort in weight and that the ſame obſervation is applicable to oats. Probably each of theſe articles, generally ſpeaking, will be two pound ſhort per buſhel of laſt year's weight. Barley comes more even bodied to market than expected; ſtill the quality is indifferent.

As to future prices, it is impoſſible to form any poſitive opinion. The ſtate of political affairs abroad, however, muſt have a material influence on the prices of wheat and oats; and the extent of importation will thereby in a great meaſure be regulated.'

OBITUARY.

Died on the 21ſt of October, WILLIAM FORBES LEITH, Eſquire, of Whitehaugh, Aberdeenſhire; a gentleman held in univerſal eſteem, a true lover of his country, a father to his tenants, and one who, as an agriculturiſt and improver, long maintained the firſt rank in that diſtrict.

ERRATA IN THIS NUMBER.

P. 479, ten lines from top, for, *But without arguing further on theſe topics*, read, *But it is unneceſſary to inſiſt on theſe topics;* and delete the parentheſis which follows.

P. 495, in the thirteenth line from top, for *at the time*, read, *as the time.*

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NOTICES

NOTICES TO CORRESPONDENTS.

We have given one ſheet and a half, or twenty-four pages, extraordinary at this time, which our readers will receive as an inſtance of our deſire to diſſeminate uſeful information.

Some valuable *Strictures on the Huſbandry of Wigtonſhire* are received, which will, without fail, appear in our next Number.

The *Draught and Deſcription of a Farm-Houſe and Offices*, obligingly communicated by Mr ERSKINE OF MAR, ſhall be preſented with a ſuitable Plate. Our beſt thanks are juſtly due to this Honourable Gentleman, for the many marks of attention kindly beſtowed on us.

A Border Farmer's Reply to A. S. on Sheep-Smearing, is under conſideration, together with a Letter from Banffſhire, ſigned '*Betty Butter*,' and many other Communications.

At the end of the volume, and eſpecially on account of the ſingular and unprecedented inſtances of favour conferred on the work, it becomes us to return our warm and ſincere thanks to the public in general, and to our worthy and numerous correſpondents in particular. The correſpondence of the Farmer's Magazine has long exceeded that of any other periodical publication, and, of late, has much increaſed. To merit a continuation of it, impartiality and attention will ſteadily be exerciſed.

Several articles of intelligence were too late in reaching us, particularly the *Letter from our Kentiſh Correſpondent*, and the *Dumbarton Report*. We requeſt that ſuch communications may always be ſent ten days before the day of publication, otherwiſe their inſertion cannot be depended on.

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